CANON

T 90

SERVICE MANUAL

EXPLODED VIEWS

AND

PARTS LIST

CANON INC. JAPAN

CANON T90 (C12-1902-000)

Preliminary Instructions

1. Electronic and written materials for the T90 have been integrated to make them even more valuable training aids. These instructions are designed to be used as a textbook with the video tape. Adjustments are explained as the stripdown progresses, rather than in a separate section.

2. Units and assemblies have been favored over individual parts in establishing the spare parts list. If unlisted individual parts are required, replace the unit or assembly. After a year of field experience, we will review the spare parts policy.

3. Accuracy of shutter speed and EV testing devices previously supplied by Camera Service are only guaranteed to 1/1000 second. Since this camera has 1/4000 second maximum shutter speed, care is necessary. We recommend using the new model tester (S-2201) which is guaranteed through 1/4000 second, but since this will not be possible in all cases, we have included alternate instructions for using the Multi-Shutter Tester EF-500 and an oscilloscope. See page 4. Shutter speeds faster than 1/1000 should not be used to check film plane exposure with the EF-500 either. If 1/4000 is used, the EF-500 will indicate overexposure when the exposure is actually correct.

4. This is the first Canon SLR to incorporate TTL-OTF flash metering. Because this system measures light reflected off of the film surface, a special film plane sensor that simulates the film surface must be used on the EF-500. This sensor is called the DIR-201 and it can only be used on units which are equipped with the necessary circuits for TTL-OTF flash metering. This modification was originally made for Olympus cameras but has recently been included on all EF-500s. If you have an older model, contact your local Kyoritsu agent for modification information.

5. This model's PMS shutter is different from the EMAS shutter used in the other T series cameras. Both curtains can be adjusted with the shutter mounted in the body so a special shutter mount for adjustment is not necessary. The curtain speeds and X sync can be adjusted with the shutter mounted in the body but operating independently. Shutter speed can only be adjusted after the electrical assembly is complete. The shutter is more expensive, so shutter repair, rather than replacement is recommended.

6. If power is applied directly to the camera with the battery case removed, solder a lead from the reset pad on the DC/DC convertor and connect it to the ground side of the DC power supply before power is applied to the camera. After power is applied, remove the lead from the ground. If this is not done the camera may not operate.

7. Color Code

To save space on drawings, it has been necessary to uses a color code. The code is:

Color	Code	Color	Code	Color	Code
Black	BL	Blue	BU	Gold	GL
Brown	BR	Violet	V	Tan	T
Red	R	Purple	PR	Pink	PK
Orange	O	Gray	GY	Sky Blue	SB
Yellow	Y	White	W	Yellowish Green	YG
Green	GN	Silver	S		

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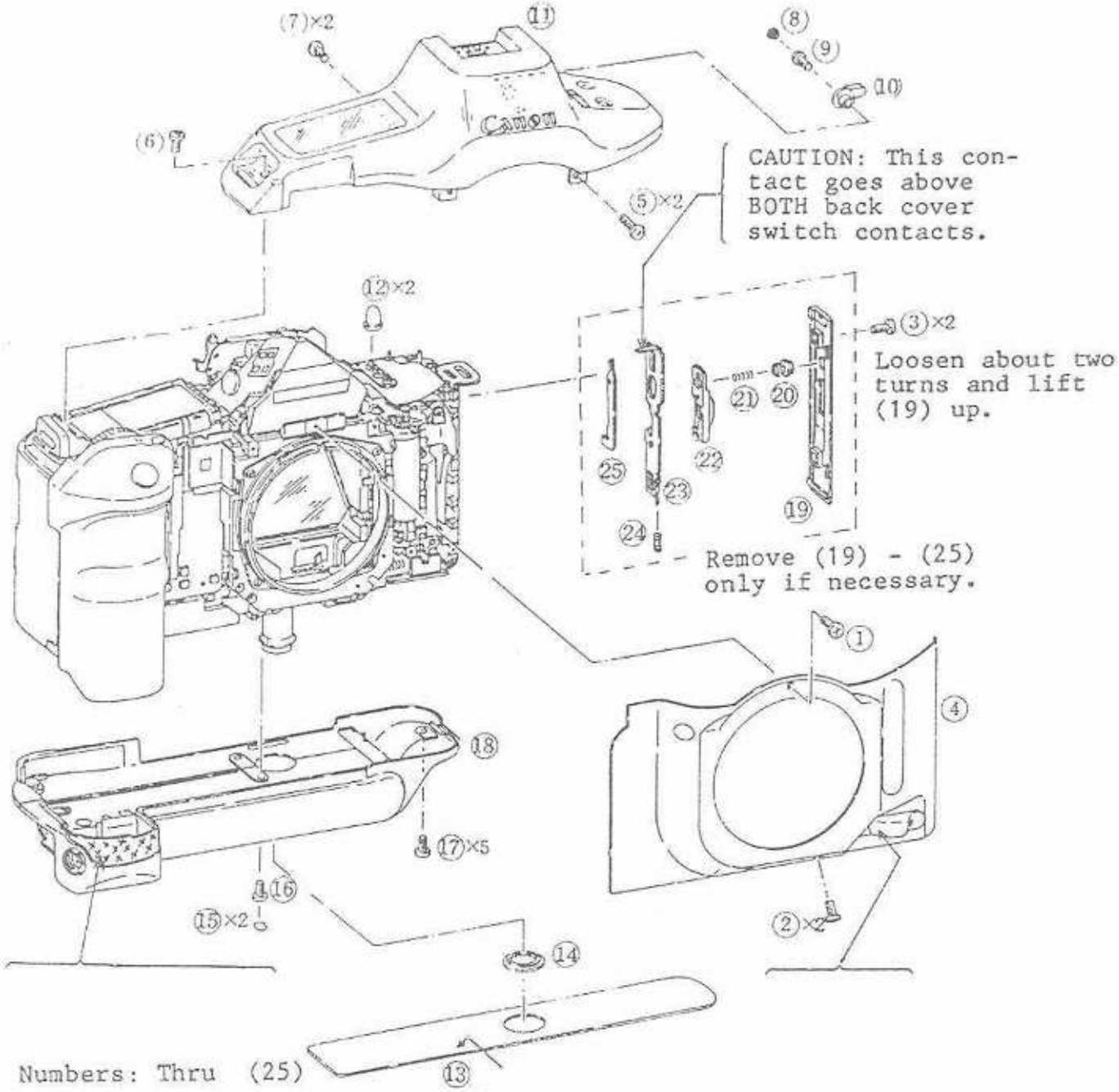
I. Front & Top Covers, Battery Case Removal



Numbers: Thru (25)

Disassembly to the extent shown allows the following adjustments to be performed.

Index No.	Adjustment (Page No.)
4	Shutter Speed (3,4); Flash Aperture Info (5); Flash FELK, TTL intensity (6); Winding Inhibit V (6)
11	Film Leader Adj. (7); P meter pattern position (8) Offset Adj (9); Aperture Accuracy (10); Gain & Level (11, 12); Finder LCD (11)
18	Curtain TT (2,3) (2nd Ctn- remove Ext LCD screws also

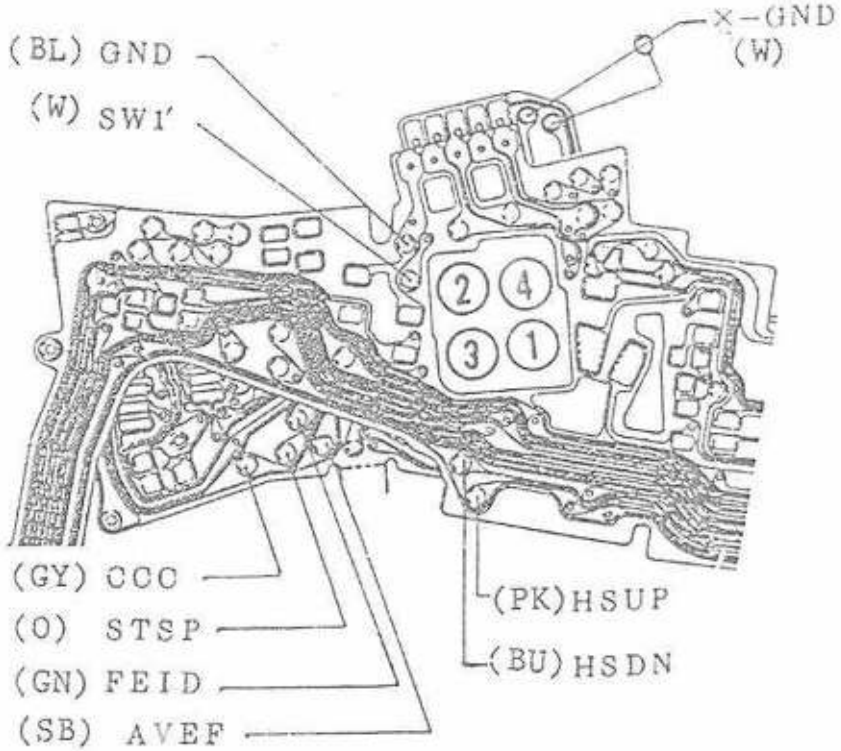
1. Front Cover (4)

1.1 To remove the front cover (4), lift the hook cover (19).

1.2 When reassembling, slip the left (grip) end of the cover in first.

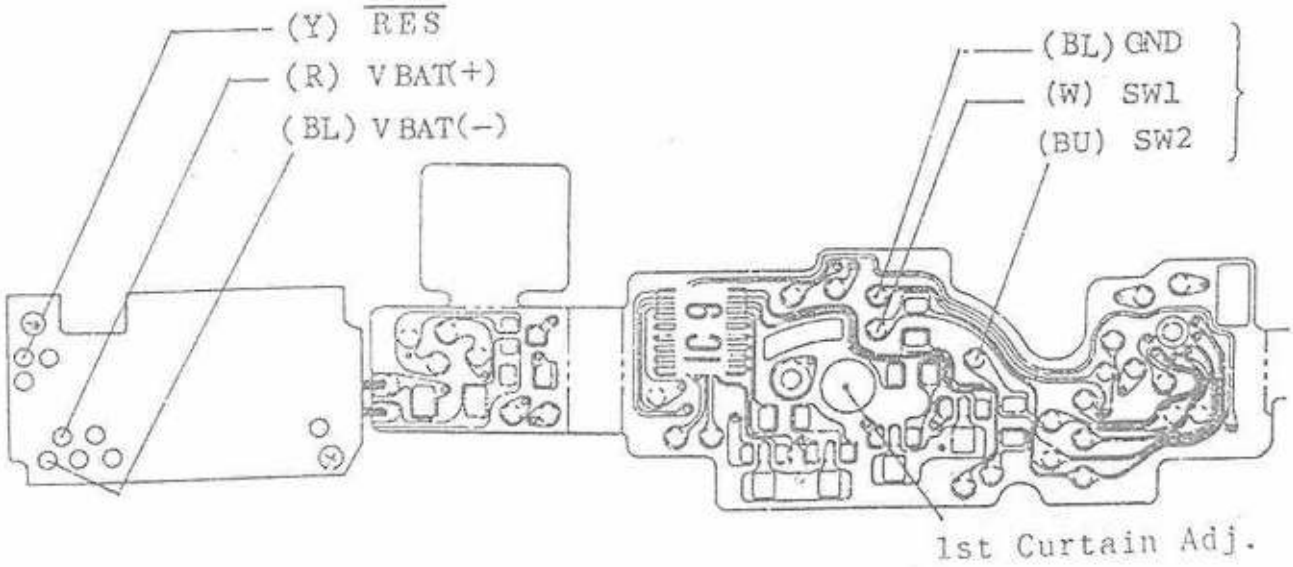
2. Top Cover (11)

Nine lead wires (one is shielded) connect the main flex to the top cover.

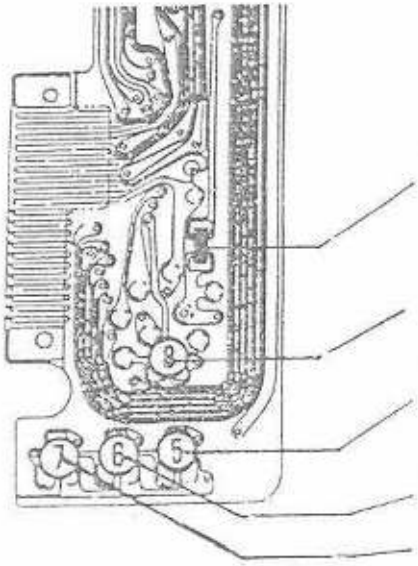


3. Battery Case (18)

Six lead wires connect the motor flex and DC/DC convertor with the remote switch and battery contact.



ADJUSTMENTS POSSIBLE AFTER REMOVING FRONT COVER


R10: Winding Inhibit Voltage Adj.
(Necessary when IC4 changed)
VR8: 1/4000 Sec. Shutter Speed Adj.
VR5: Flash Aperture Information
(Use flash with manual f/No set)
VR6: Flash FLEK Intensity
—— Use Speedlite 300TL
VR7: Flash TTL Intensity

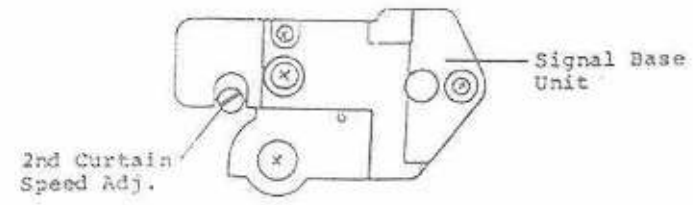
Shutter Speed Adjustments

Adjust if IC4, the main flex, or shutter unit is replaced. Use test equipment capable of measuring 1/4000 sec. (EF-500 can only accuractly measure 1/1000 sec.)

Standards:

Curtain Travel Time	2.7 ±0.2ms (EF-500 O.K.)(10.5mm slits)
Shutter Speeds	1/4000 sec.: 0.300ms Slow (+) limit 0.244ms ±0.3EV 0.198ms Fast (-) limit
Flash (X) Sync.	A Line: Over 0.2ms B Line: Over 1.6ms (See pg. 5 for details)

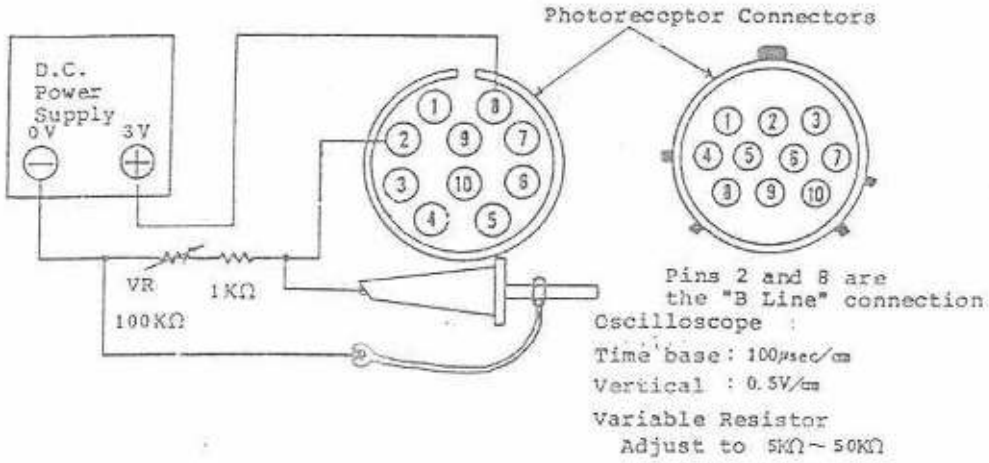
Adjust VR8 so 1/4000 is as near 0.244ms as possible, and check the other speeds. See the Shutter Speed/EV chart for tolerances. The 1st curtain worm gear adjustment is possible after the battery case is removed. Adjustment is like the EMAS shutter. (To adjust the 2nd curtain travel time, the external LCD must also be displaced, and the main flex lifted slightly. This adjustment is also like the EMAS.)
X sync is adjusted with the eccentric screw beside the lens mount.



ALTERNATE ADJUSTMENTS

1/4000 sec. Adjustment with Oscilloscope

This adjustment uses the photosensor of the EF-500 connected to an oscilloscope to check the 1/4000 sec. shutter speed. Before this adjustment, adjust the curtain travel time with the EF-500.

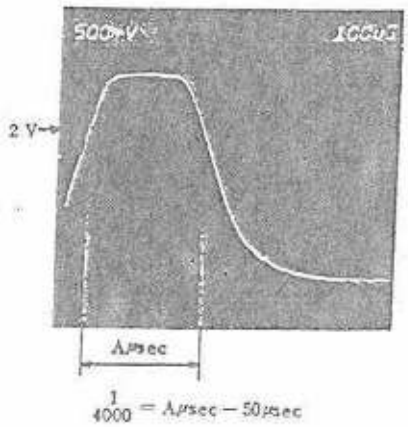


Procedure

1. Connect the EF-500 photosensor to the oscilloscope as shown.

2. Set the EF500 to EV12 and K14.03. Put the photosensor in the film aperture.

3. Set the camera to a long shutter speed or bulb, and release the shutter. While the shutter is open, adjust the variable resistor so the line on the oscilloscope is on 0.5V.



4. Reset the EF500 to EV15 and the camera to a 4000th, and release the shutter.

5. Read the width of the waveform at 2V. It should be 294 us.

6. Adjust VR8 so the width at 2V is as close as possible to 294us.

Note Using the EF-500 to adjust 1/4000 sec. will result in a slow shutter speed (about 0.37ms). The EF-500 can be used by taking an average of several good cameras. Another possibility is adjusting at 1/1000sec. as a midpoint, but since the accuracy of the EF-500 is ±0.1EV, this would allow a ±0.4EV at 1/4000 sec. even if the 1/1000 sec. adjustment was perfect (0.98ms). Because of the possible error, we do not recommend this method.

2. Flash Aperture Information (AVEF)
Adjust when IC4 or main flex is changed.

Standard: Selected Aperture ±0.4 f/stops

Tools: Standard tool 50mm f/1.4; Speedlite with manual aperture setting (277T, A-series Speedlite).

Adjustment:
1. Adjust VR5 until the f/stop displayed in the viewfinder matches the one set on the speedlite.
2. Release the shutter and check that the lens stops down to the displayed aperture ±0.4 f/stops.

ALTERNATE ADJUSTMENTS

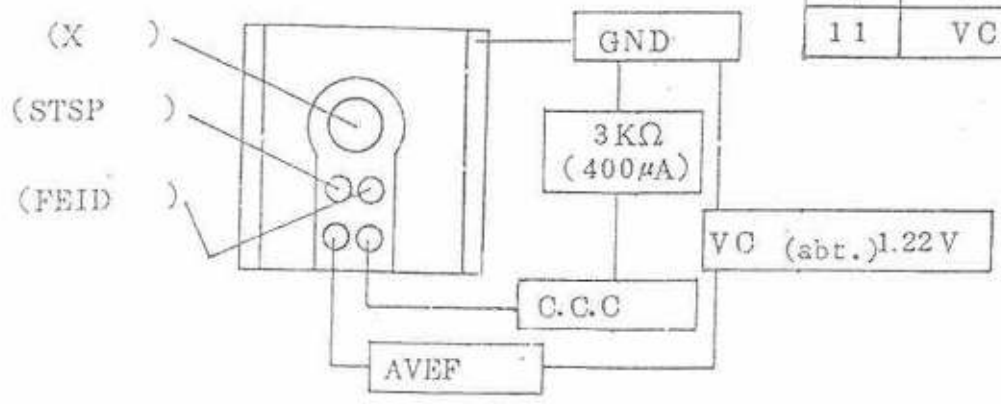
If an approiate speedlite is not available, use a hot shoe (foot) from an A or T series flash and,
1. Read and record the VC voltage at the CCC terminal.
2. Apply VC to the AVEF terminal to set f/4.0.
3. Install a 3KOhm resistor between CCC and ground to set the flash mode (1/250).
4. Turn SW1 on and adjust VR5 so f/4 appears in the finder.

C.C.C Current

I (μA)	Mode
0	A E
250	1st Cur. sync (non-ded.)
400	1st Cur. sync (dedicated)
800	2nd Cur. sync (dedicated)

AVEF Voltage

F.No	AVEF V
1.4	VC+3/16 VC
2.0	VC+2/16 VC
2.8	VC+1/16 VC
4.0	VC
5.6	VC−1/16 VC
8.0	VC−2/16 VC
11	VC−3/16 VC



To check X sync, wire as above and set shutter speed priority (TV). Connect the sync to the shutter tester. The tester should read:

Flash (X) Sync. A Line: Over 0.2ms
B Line: Over 1.6ms

3.& 4. Flash FELK & TTL Intensity Adjustments
Adjust if main flex is changed.

Standard: +0.7±0.5

Tools: Speedlite 300TL, EF-500 with DIR-201 photoreceptor, 18% gray card (2m X 1m), FD 50mm f/1.4 lens.

Adjustment:

1. Lower the ambient light to EV6 or less, and set the EF-500 to the DIR-201 mode and K=12.5.

2. Point the camera directly at the gray card at a distance of two meters.

Adjustment:	FELK	TTL

3. Equipment Settings:

Shutter Speed	1/250	
Aperture	f/5.6(Stop-down mode)	f/5.6(Manual mode)
ISO	100	
Adjustment	VR6	VR7

4. Set flash to 35mm and mode to: FEL Mode / TTL Program Mode

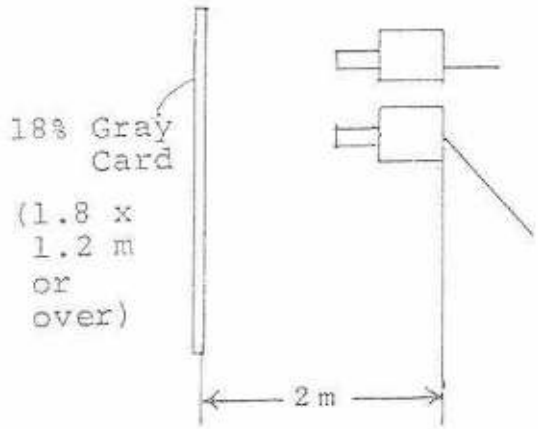
5. Put the EF-500 photosensor in the film aperture, press the spot button, and after the preflash, release the shutter.

6. Adjust until the EF-500 reading is within ±0.5 f/stop of the standard, with the approiate variable resistor.

ALTERNATE ADJUSTMENTS

If your EF-500 is not modified for TTL-OTF Flash, a second camera is used to measure the film plane illumination. Since it is practically impossible to fire two cameras at the same time, this procedure is performed in a darkroom with the second camera on bulb. The cameras must be fitted with identical lenses working at the same aperture.

1. Set up the equipment as shown in the figure.



Dummy Camera: T70 (Release B, Remove bat.)
FD50/1.4 (Aperture set f/8)
EF-500 - EE (ISO 100,K-12.5)

Test Camera: T90
Speedlite 300TL (New bat.)
FD50/1.4
New film (Kodak EN-100)

(DARKROOM)

2. Release the shutter on the test camera and read the EF-500 reading from the dummy camera. Standards are the same as for the normal procedure.

3. If the 18% gray card reflector is not available, make an average of several cameras to establish the center values.

Note: The maximum film reflectance variation from the representative film is 0.7EV.

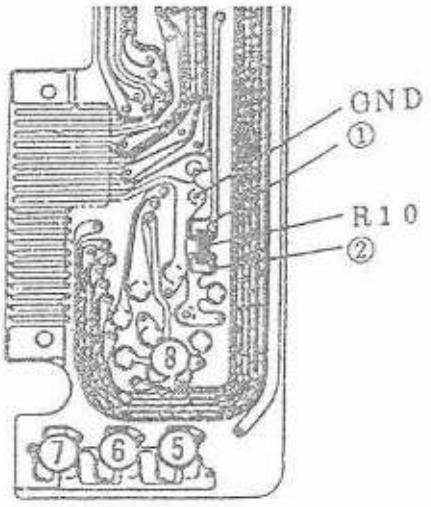
Note: See the EF-500 instructions for information concerning the DIR-201 photoreceptor for the EF-500.

5. Winding Inhibit Voltage Adjustment
Adjust if IC4 has been replaced.

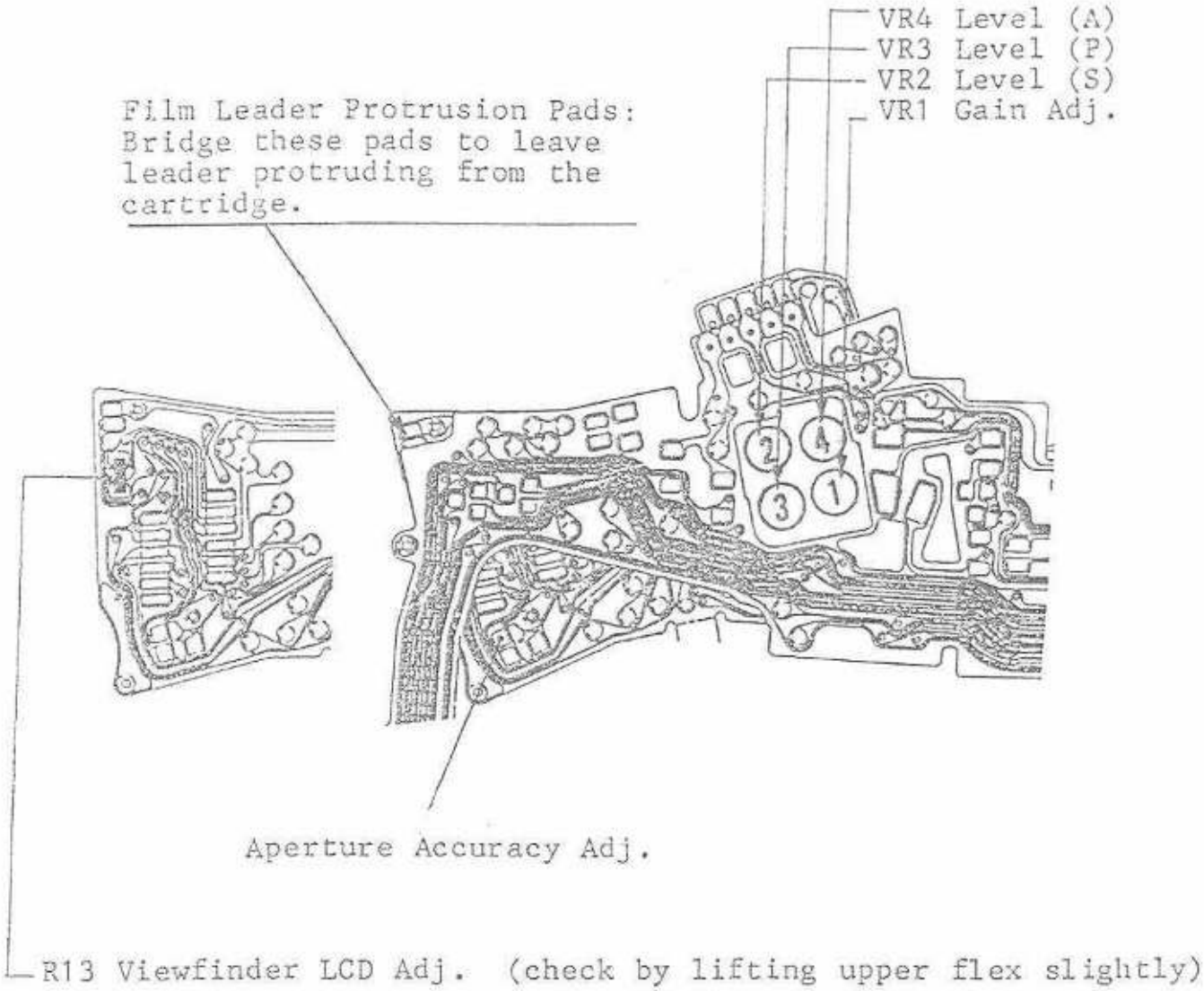
Standard: $3.6 \pm 0.2V$ ($R_{BAT} = 1/2 V_{BAT}$)

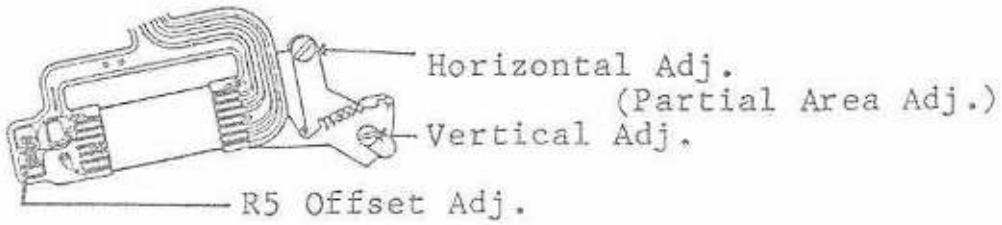
Tools: Voltmeter

Adjustment:
1. Measure and record as V_{BAT} the voltage from (2) to GND.
2. Press the battery check, measure and record as R_{BAT} the voltage from (1) to GND.
3. Change R10 so $R_{BAT} = 1/2 V_{BAT}$.



ADJUSTMENTS POSSIBLE AFTER REMOVING TOP COVER


VR4 Level (A)
VR3 Level (P)
VR2 Level (S)
VR1 Gain Adj.
Film Leader Protrusion Pads: Bridge these pads to leave leader protruding from the cartridge.
Aperture Accuracy Adj.
R13 Viewfinder LCD Adj. (check by lifting upper flex slightly)



6. Film Leader Modification (Service Action)

If a user prefers that the film leader not rewind completely into the cartridge, bridge the two pads.

7. Partial Metering Area Alignment
Perform this alignment if the eyepiece shutter, IC1, or the main flex has been changed.

Tools: EV Tester (EF-500), FD 50mm f/1.4 lens, point light source plate (black, at least 12 X 18cm, with a 12mm hole in the middle.

Adjustment:

1. Place the point-source plate over the light source on the EF-500.

2. Set the metering area to partial (P), the mode to Program (or AV), the lens to f/5.6, and activate the stop-down slide. (Setting the lens to f/5.6 emphasises the difference between the dead spot in the center of the photocell and the sensitive area. This simplifies the alignment.)

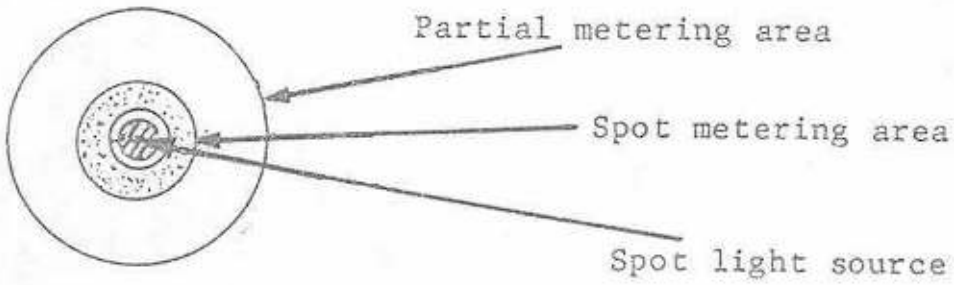
3. Square the camera with the light source at the closest focusing distance of the camera. Set the lens focusing ring to the closest distance also.

4. Center the focusing aid on the source and read the shutter speed.

5. Release SW1 and move the focusing aid off-center. Push SW1 again and if the shutter speed drops, the alignment is not correct.

6. Adjust so the light source spot falls withing the microprism circle

7. Adjustments are indicated on page 8. (The T70 check can also be used.)



8. Spot Metering Area Alignment
Adjust if mirror unit has been changed. (Only vertical adjustment is possible. Horizontial is determined by parts.)
The spot flex, IC2 and fresnel lens are supplied as a pre-adjusted unit, so adjustment is only necessary if mirror unit is changed. Set the sub-mirror eccentric as set in the removed mirror unit and there is almost no problem.

Tools: Same as partial adj., plus New F-1 shutter adjustment spanner (CY9-6136-000)].

Adjustment:

1. After adjusting the main mirror angle, assemble the camera into the operational condition. (The adjustment can be performed with the camera completely assembled).

2. Place the point-source plate over the screen on the EF-500.

3. Set the metering area to spot (S), the mode to Program, the lens to f/5.6, and set the stop-down slide. (Setting the lens to f/5.6 makes the metering spot very nearly round.)

4. Square the camera with the light source at the closest focusing distance of the lens. Set the lens focusing ring to the closest distance also.

5. Center the focusing aid on the point source and read the shutter speed.

6. Move the focusing aid off-center vertically. The upper and lower off-center readings should be the same (within 1EV).

7. Adjust the sub-mirror eccentric stopper through the film aperture (with the shutter open at "B").

8. The main mirror angle has a greater effect on the metering area than the sub mirror, and IC2 and the spot fresnel have a greater effect than either mirror.

9. Offset Adjustment
Perform this adjustment if IC1 is replaced.

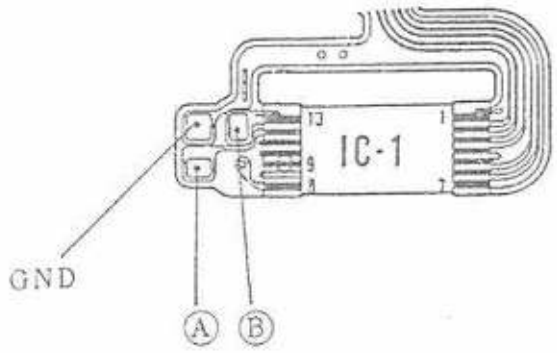
Standard: 0±2mV

Tools: Voltmeter

Adjustment:

1. Short MOS IN (p 9) to MOS OUT (p 7), and check the voltage at TP (p 8).

2. If the voltage is greater than ±2mV, install a 100K Ohm resistor from either A or B to ground and adjust the resistor voltage at TP is less than 2mV. Install a fixed resister of the value determined by the variable.



Note: The spot metering IC2 is a factory-adjusted part of the spot flex, so offset adjustment is not required.

10. Aperture Accuracy
Perform this adjustment if AE Unit or main flex is replaced.

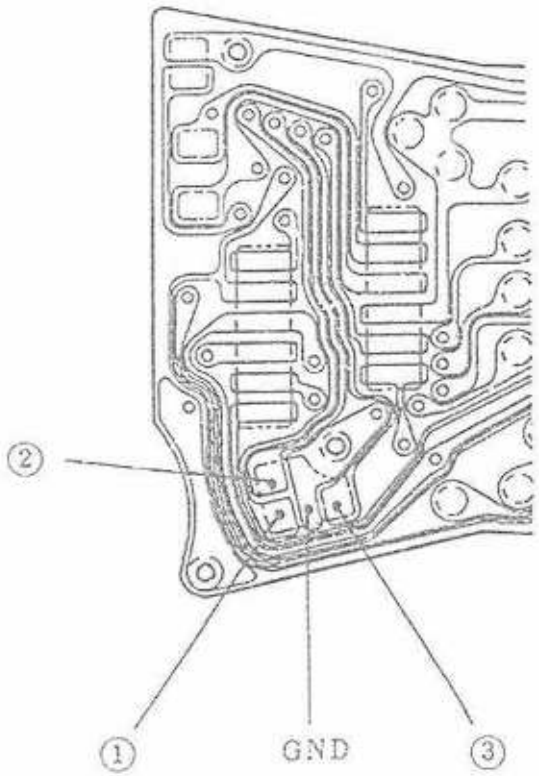
Standard: f/5.6 ± 0.3f/stop

Tools: Standard Tool Lens 50mm f/1.4

Adjustment:

1. Set the camera in the AV mode at f/5.6. Repeatedly release the shutter and check the aperture set on the lens.

2. If necessary, bridge the appropriate pads as shown by the table. (When replacing the main flex, note the bridged pads and bridge the same pads on the new main flex.)



①	②	③	Correction ⇩
			+ 3/8
		○	− 2/8
	○		+ 1/8
	○	○	0
○			− 1/8
○		○	− 2/8
○	○		− 3/8
○	○	○	− 4/8

○: Indicates grounded pad

11. Level and Gain Adjustment
Perform this adjustment if IC4 or the main flex is replaced.

Standard: 0±0.4F

Tools: EF-500, AE Standard Tool Lens FD50mm f/1.4, Top cover modified for adjustments (access holes for VR1 - VR4).

Aperture accuracy must be adjusted before this adjustment.
Perform in order, level and then gain.
If the AE Tool lens is not available, see section 11.A.

11.1 Level Adjustment

1. Set the EF-100 to EV12, K=12.5, and ISO 100, and the camera to 1/125, Spot metering and ISO 100.

2. Adjust the level variable resistors so the tool lens pointer stops at f/5.6.
Spot- VR2, Partial- VR3, Average- VR4

11.2 Gain Adjustment

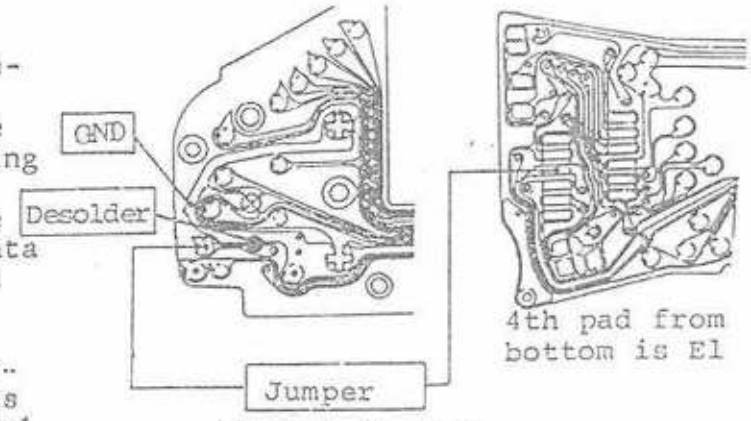
1. Set the EV-500 light source to EV6, the camera to partial metering and 1/2 sec shutter.

2. Adjust VR1 so ther tool lens pointer stops at f/5.6.

3. After adjusting both level and gain, check exposure accuracy at EV6, 9, 12, and 15.

11.A. Level and Gain Adjustment (without Tool Lens)
(This adjustment uses the outputs of AR1 and AR2 rather than the tool lens pointer position to make the adjustment. - The procedure is the same.)

Procedure
1. Prepare the circuit as shown and install the temporary top cover.
2. Turn SW1 on and watch the viewfinder LCD while making the adjustment.
3. Change the meterning mode by shorting the bottom data back terminal to the film plane ground pin as necessary.
4. In the shutter speed indication, the right 2 digits indicate the output of AR-1 and the left 2 AR-2.



(Instal jumper)

5. As the data back ground (step 3) is opened and closed, the aperture digits indicate the three metering modes, 03(BV-Spot), 02(BV-Partial), 01(BV-Average), then 00(VC), 07(BC), 06(AV EF), 05(EF_{pre}), 04(EF_{others}) and back to 03.

6. For example:

CE ** 01
A B C

A: AR1 output
B: AR2 output
C: Average mode

This shows that the EV12 adjustment of AR1 is correct.
**: AR2 output is not important at EV12.

7. At EV12 the readings should be: D2 in 03 mode, D0 in 02, and CE in 01 mode.

EV	AR1 A (01)	AR1 P (02)	AR1 S (03)	AR2 A (01)	AR2 P (02)	AR2 S (03)
15	9F	AO	A2			
14	AE	BO	B2			
13	BE	CO	C2			
(12)	CE	DO	D2			
11	DE	EO	E2			
10	EE	FO	F2	26	28	2A
9				36	38	3A
8				46	48	4A
7				56	58	5A
(6)				66	68	6A
5				76	78	7A
4				86	88	8A

8. Gain adjustment, at EV6 in partial mode, should give a reading of :

** 68 02
A B C

**: AR1 output is not important at EV6.

Notes: At low brightnesses, AR1 low output is indicated by "FF", and at high brightnesses AR2 output is high and not usable.
AD output of AR1 and AR2 is a 16 bit per EV signal.

12. Viewfinder LCD Adjustment
Perform this adjustment if IC4 is replaced.

Standard: Visual Cneck

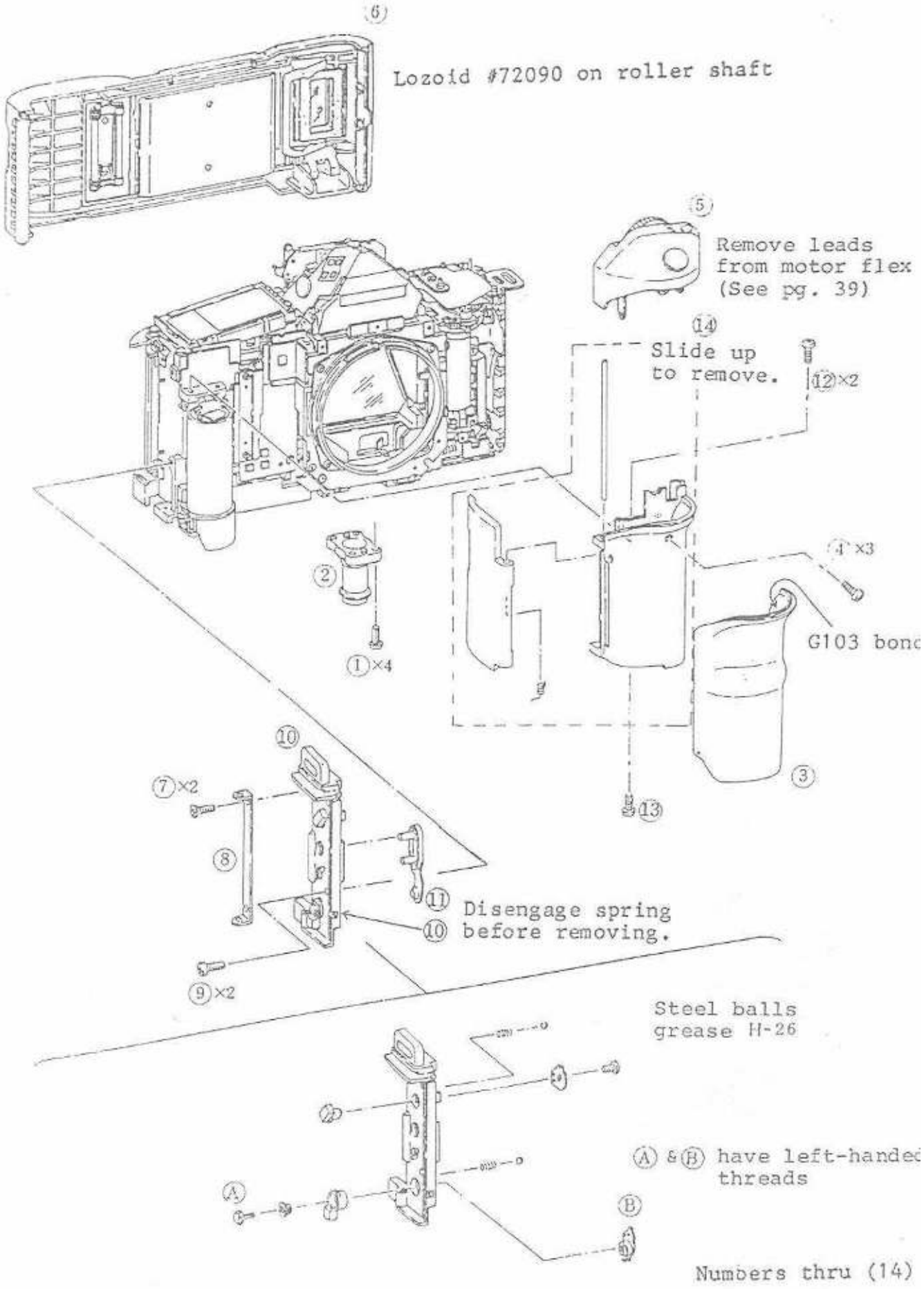
Tools: Variable Resistor (About 10K Ohms), FD Lens

Adjustment:

1. Remove R13 and install the variable resistor in its place.
2. Set the spot metering mode, the lens to "A", and press the spot button to activate the 30 second timer.
3. Adjust the variable resistor so that the segaments that should be visible are and the ones that should not be visible are not.

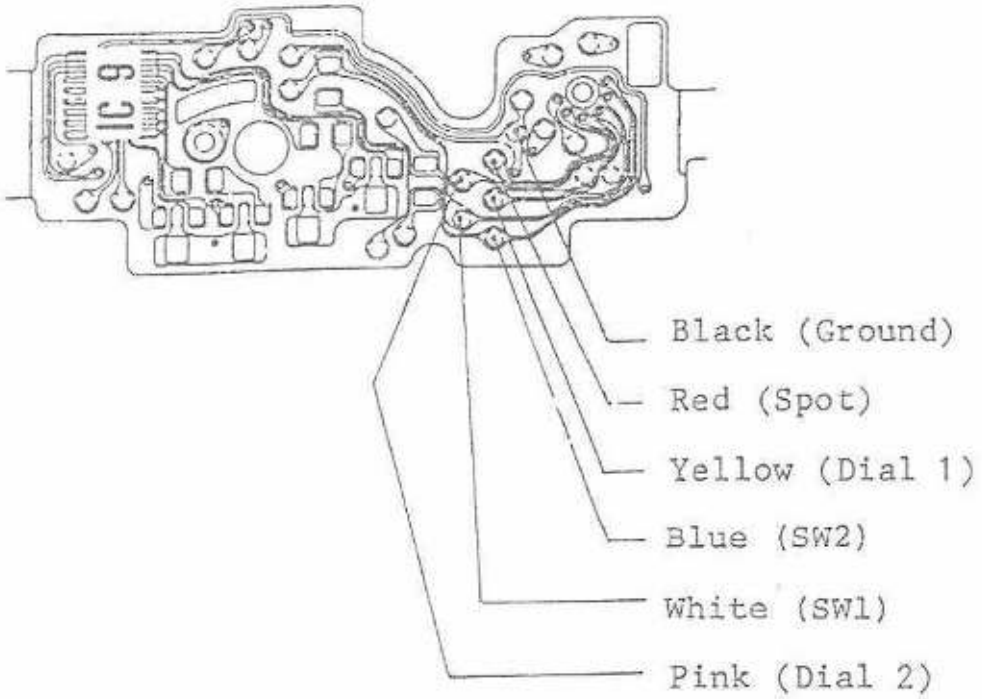
4.Remove the variable, read it and install the closest fixed resistor.

II. Grip Removal



1. Grip Head Unit (5)

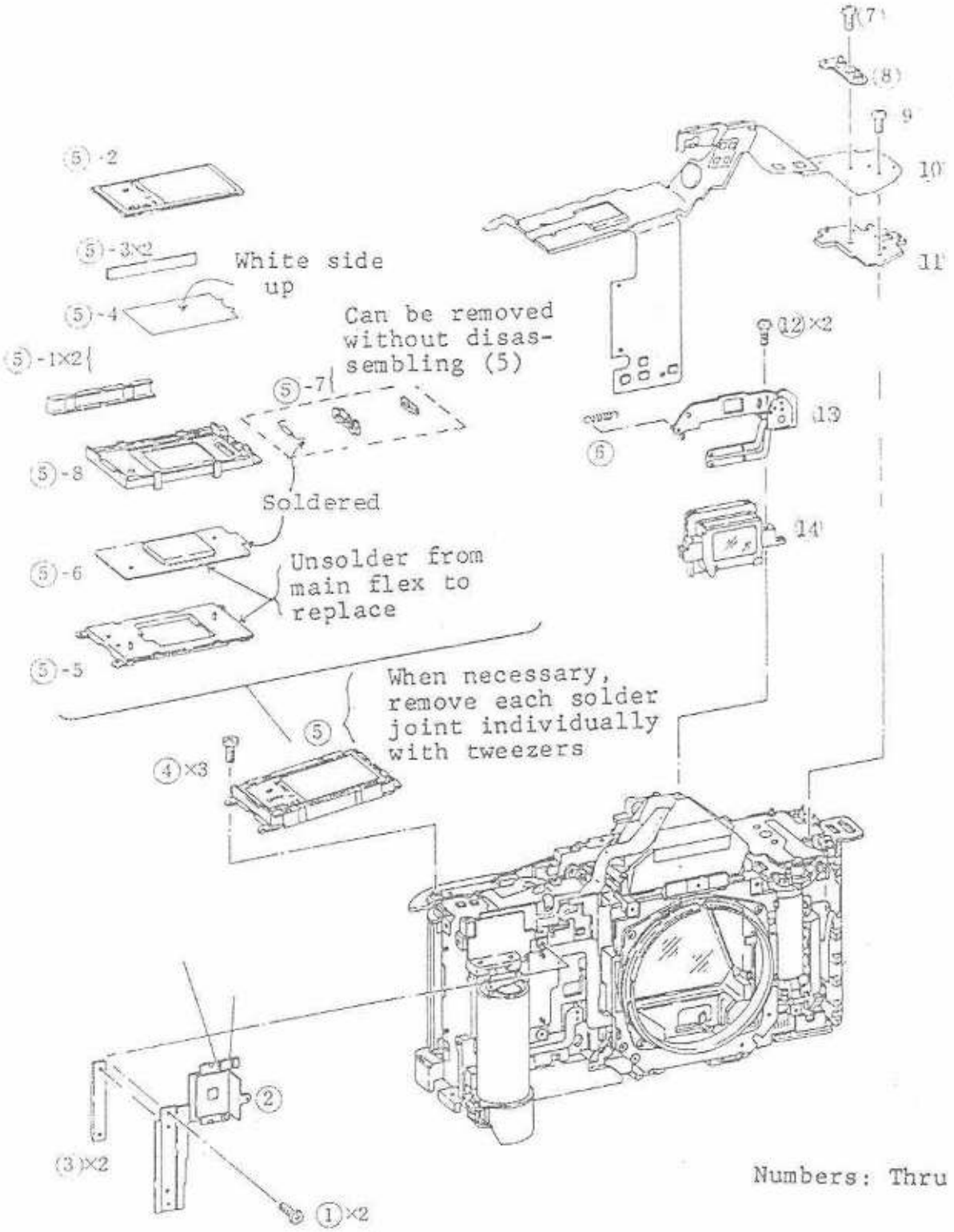
Six leads connect the grip head to the motor flex.



2. Grip (14)

Switch Panel Assembly (10) must be removed before Grip (14) can be removed.

III. Main Flex Removal



Numbers: Thru (14)

Disassembly to the extent shown allows the following adjustments to be performed.

Index No.	Adjustment (Page No.)
10	Flash Mode Information (19)
	EV10 Amplifier Switching (20)

1. Main Flex Unit (10) Removal

There are 33 leads, 3 Thru-Hole connections, and direct connections to the shutter flex and the FD flex that must be removed to remove the main flex unit.

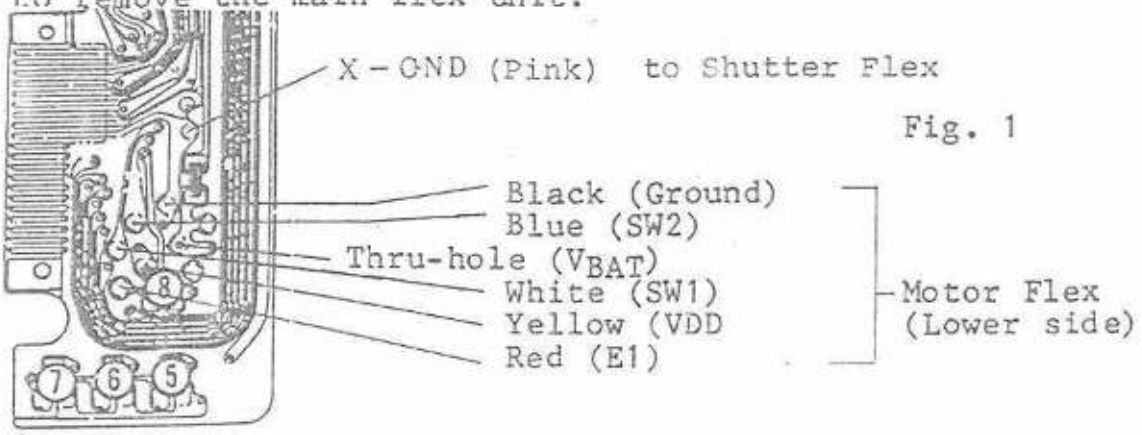
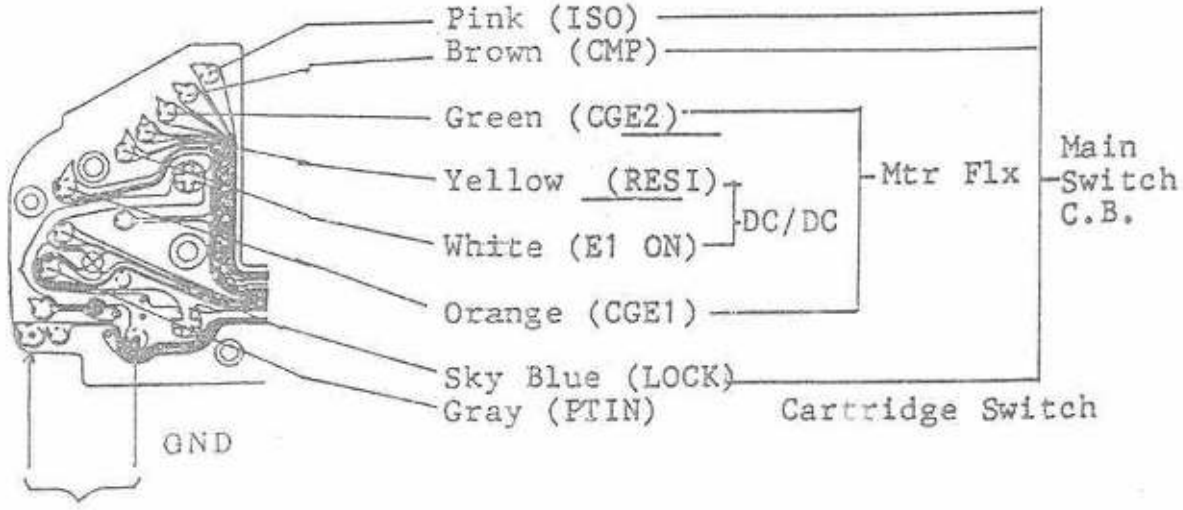


Fig. 1

Fig. 2

Fig. 3



Thru-hole connections
(Back Cover Switch)

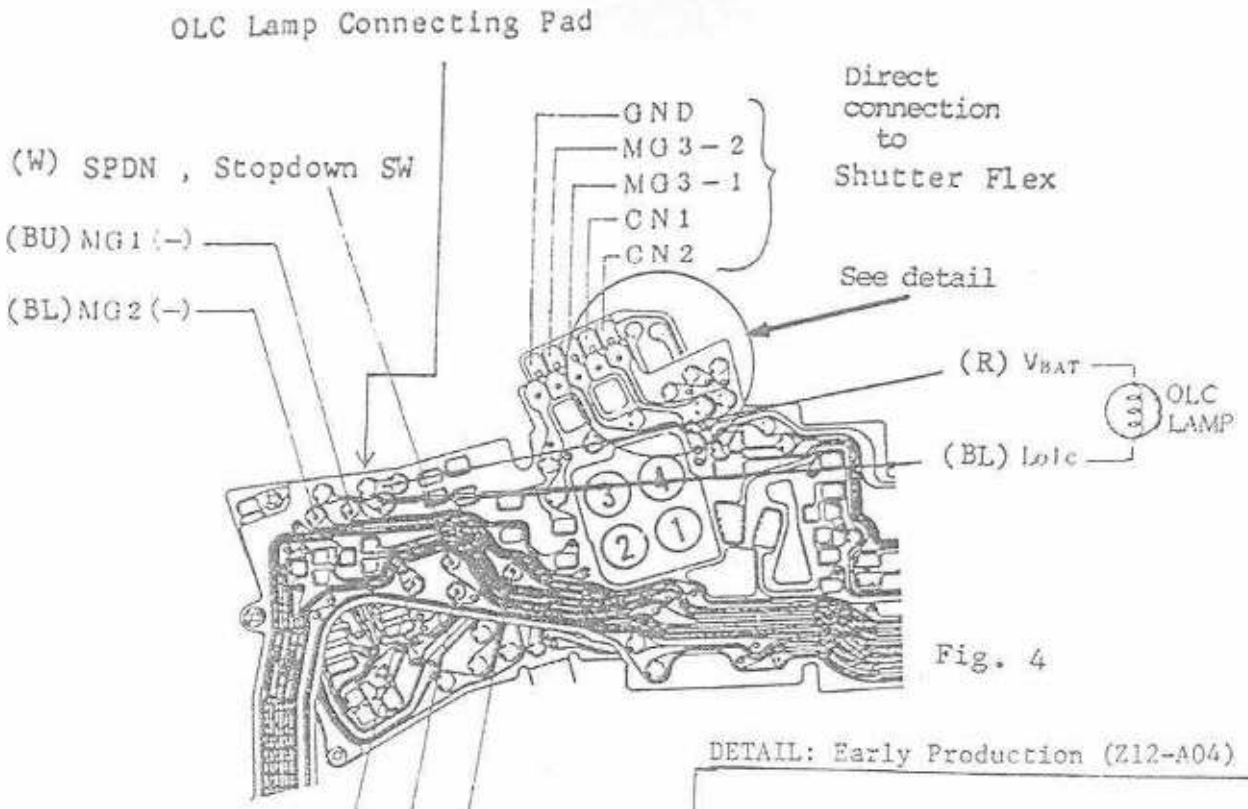
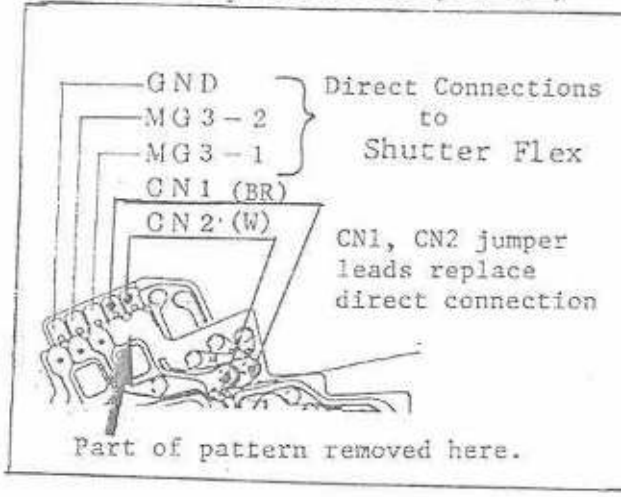


Fig. 4

DETAIL: Early Production (Z12-A04)



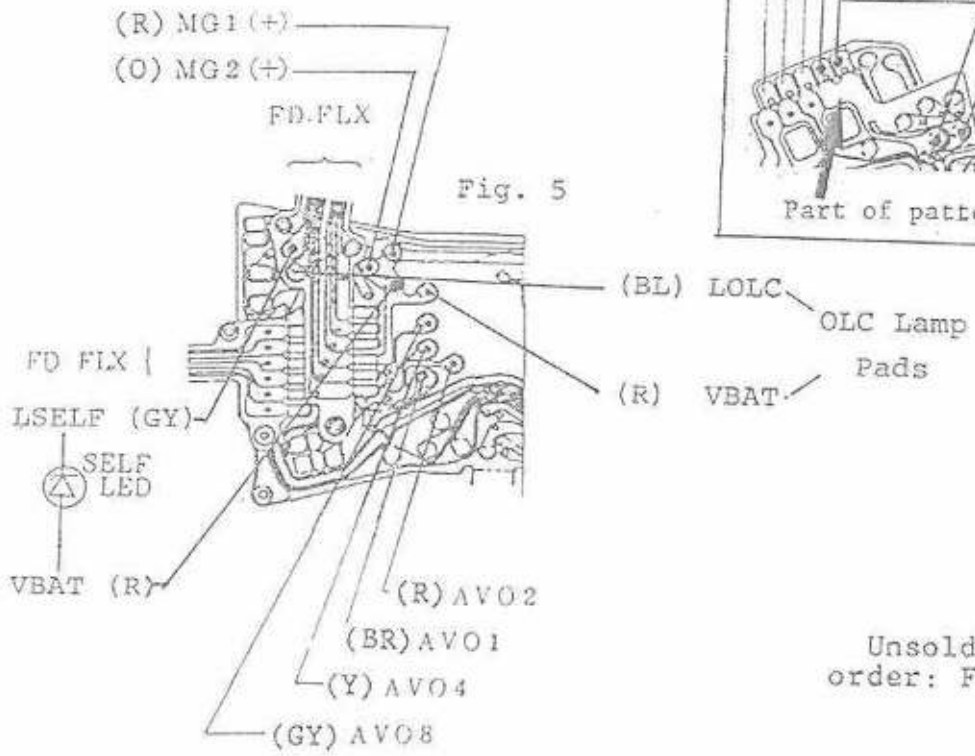


Fig. 5

Unsolder in this order: Fig. 1,5,4,3,2.

1. Flash Mode Information
Adjust when IC4 is changed. (If incorrecly adjusted, the flash mode information will not be correctly sent to camera.) Perform the EV10 crossover adjustment concurrently.

Tools: D.C. Power Supply, Voltmeter, two 10K variable resistors

Adjustment:(Top & Front Covers Removed)

1. With the camera in operatable condition, unsolder the connections shown in figure 1 on page 17 and the self-timer LED unit. This frees the front tongue of the main flex.
2. Remove R7 from the rear of the flex and install a variable resistor in its place.
3. Resolder the main flex tongue and LED.
4. Close SW1 and measure VC.
5. Install a variable resistor between the CCC terminal and ground (metal part of the eyepiece shutter) The resistance should be set to VC/150uA.
6. Close SW1 and find the lighting threshold of the flash mark by adjusting the resistor.
7. Remove the resistor, measure it, and install a fixed resistor of that value.

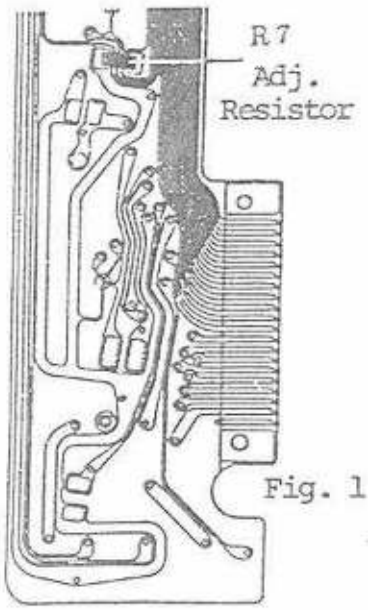


Fig. 1

ALTERNATE ADJUSTMENTS

Battery Case and Grip Head Removed.

A. For power connection, see No. 6 in the Repair Guide introduction.

B. Install a temporary SW1 as shown in figure 3.

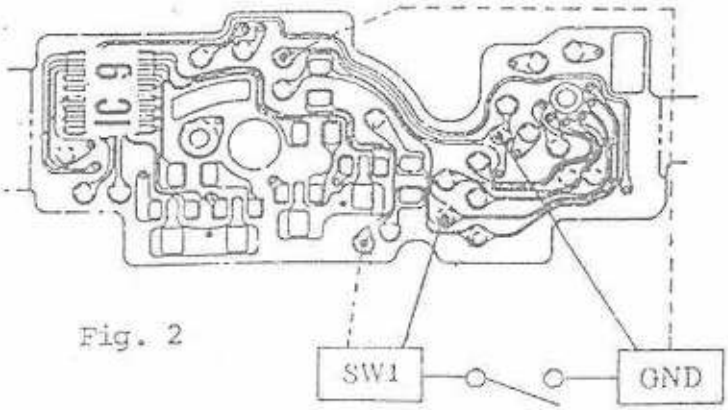


Fig. 2

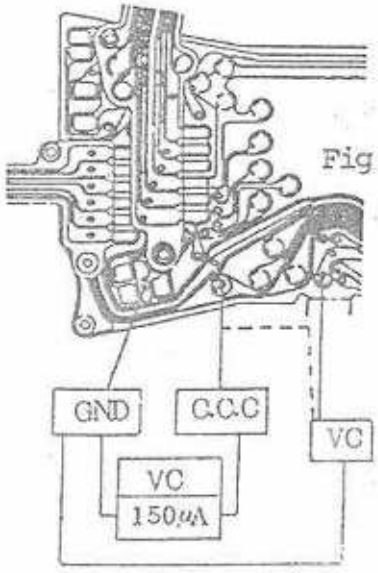


Fig. 3

2. EV10 Amp Switching
Adjust when IC4 is changed. If incorrect, improper exposure in the area of EV10 is possible even with level and gain adjusted. Perform concurrently with flash mode info. adj.

Standard: ±3/16 f Limits: (2D 2E 2F Center 30 31 32 33)
Value(Right TV digits)

Tools: D.C. Power Supply, Voltmeter, 10K variable resistor.

Adjustment:(Top & Front Covers Removed)

1. With the camera in operatable condition, unsolder the connections shown in figure 1 on page 17 and the self-timer LED unit. This frees the front tongue of the main flex.
2. Unsolder La1 leads (pg. 18, fig. 4) from intermediate pads.
3. Remove the three screws from LCD1.
4. Unsolder the connections shown in figure 2 on page 17.
5. Remove resistor R8 (Fig. 2) and replace it with the variable resistor set to R8's resistance.
6. Resolder the connections to make camera operational.
7. Remove the solder bridge from (1) to GND in Fig. 1.
8. Connect Fig. 1 (1) and Fig. 3 (2) with a jumper.
9. Apply about one volt from the AVEF to ground pad (Fig. 3).
10. Close SW1.
11. Set the reading of the AV digits in the viewfinder to 06 by repeatedly shorting the bottom command back terminal to ground. The initial position is 03 and the shift sequence is 03-02-01-00-07-06-05-04-03 etc.
12. Adjust the D.C. power supply so the left TV digits read F8.
13. Adjust the variable resistor so the right pair of digits read 30.
14. Remove the resistor, read it, and install a fixed resistor.

Fig. 1

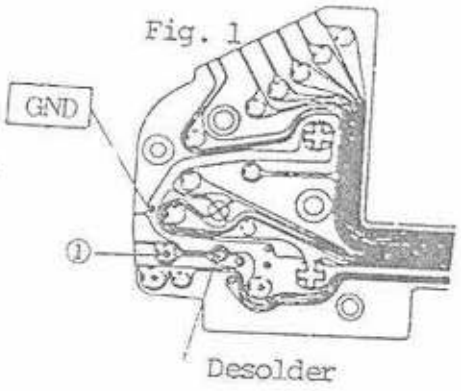
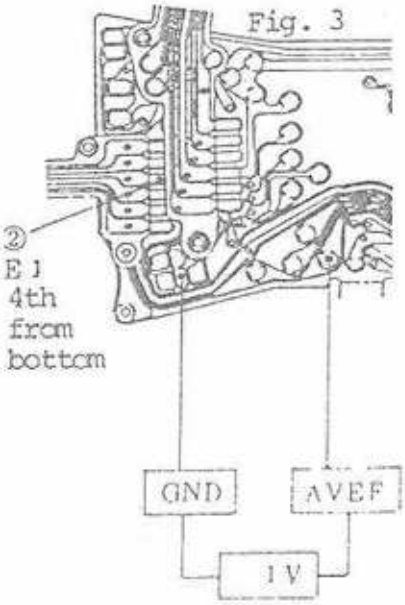


Fig. 3



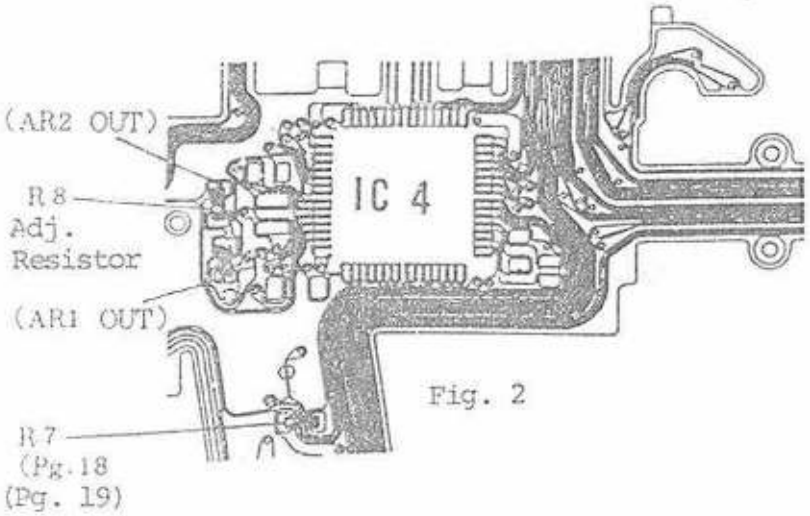
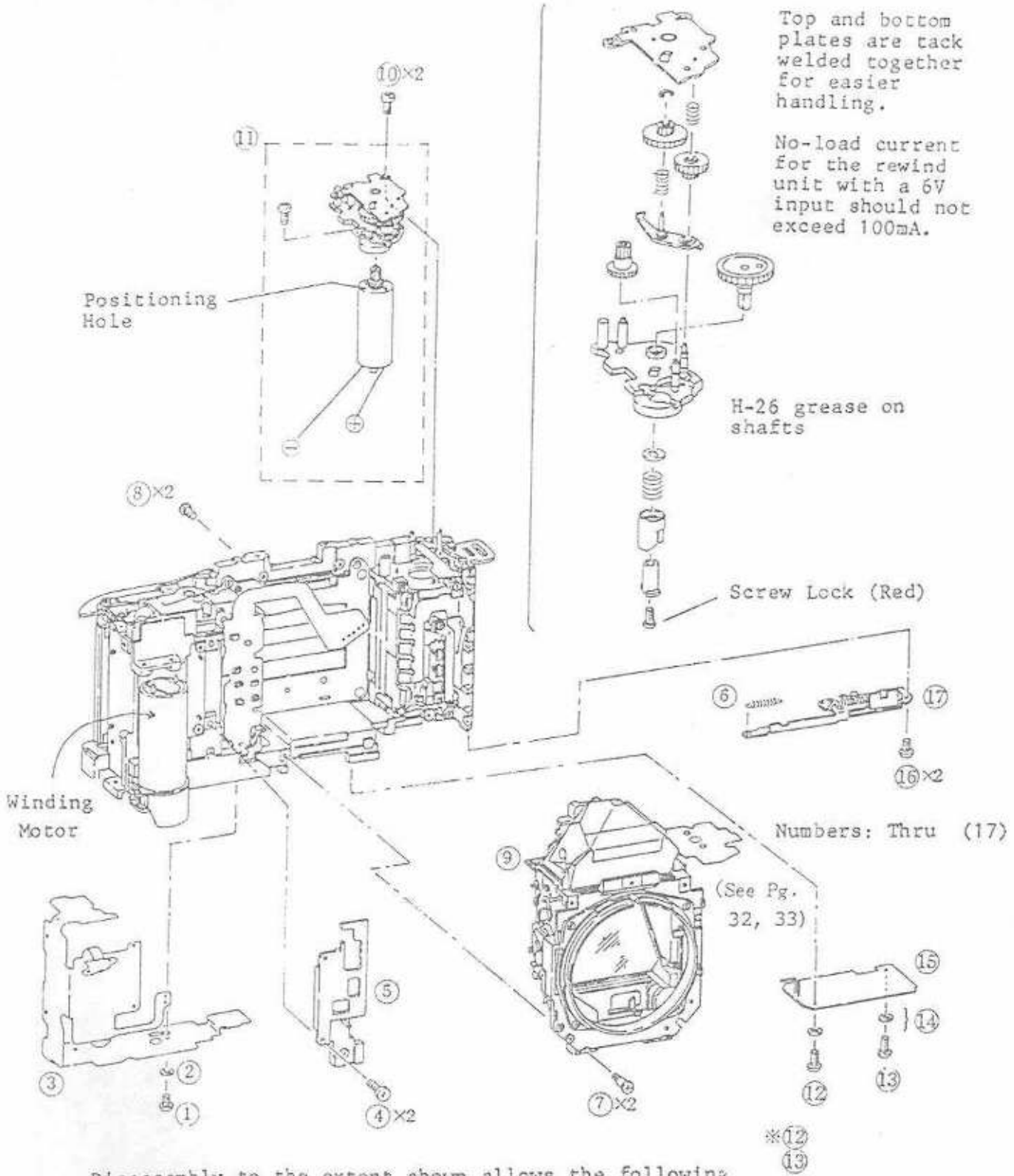


Fig. 2

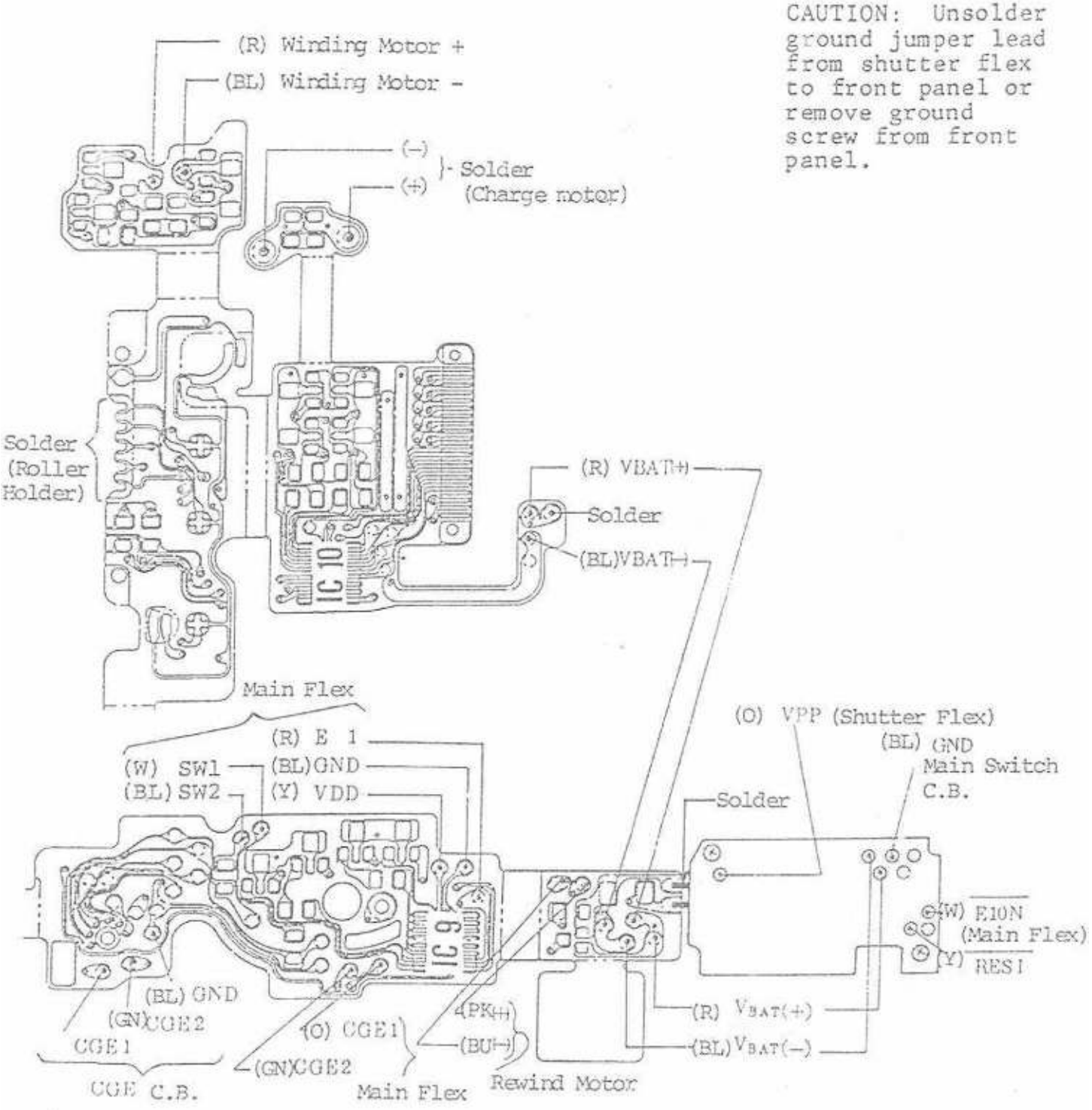
IV. Motor flex, Mirror Box, & Rewind Units Removal



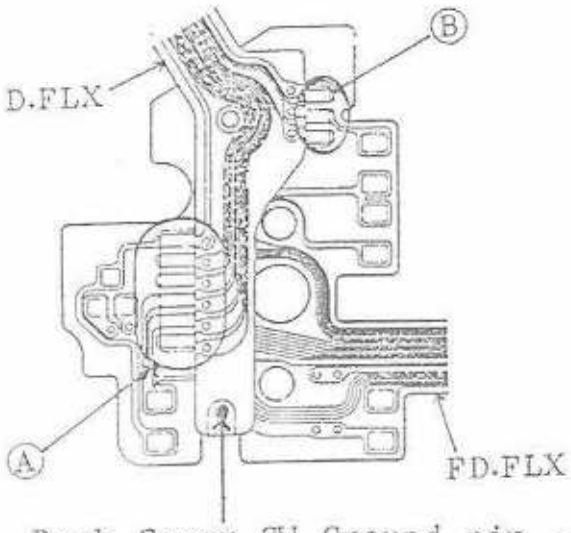
Disassembly to the extent shown allows the following adjustments to be performed.

Index No.	Adjustment (Page No.)
3	AE Overcharge (23) ; Shutter Overcharge (23)
9	AE Set Position (24) AE Set Timing (24) AE Pin Spacing (25) AE Brush Start Position (25) AVO (26)

1. Motor Flex (3), DC-DC convertor (15)



2. Mirror Box (9) Removal



Back Cover SW Ground pin - Soldered to FD Flex.

Before unsoldering at (A) and (B), remove the DX Flex and unsolder the FD flex from the back cover ground switch pin. (The pin serves as a positioning pin for the DX Flex. Then unsolder (A) and (B). (If forcefully removed the pattern on the underside of the DX flex may be damaged.

NOTES:

1. Because of the 2nd Curtain sync feature, the shutter should be charged when the mirror box is installed.
2. Post Assembly Checks
   1) Apply about 3 volts to the winding motor to wind the mechanism (polarity is not important).
   2) Apply about 3 volts to the orange (+) and black (-) leads on the right side* of the mirror box.
   3) Apply about 3 volts to the magnet coils to check curtain operation.
      1st Curtain: Bottom two contacts, bottom contact is -.
      2nd Curtain: Top two contacts, top is +. (Will not operate if polarity is reversed.)

*: Viewed from the front.

ADUSTMENTS POSSIBLE AFTER REMOVING MOTOR FLEX

1. AE Overcharge

Standard: 0.9 - 1.1f

Tools: AE Tool Lens , DC Power Supply

1. Install the tool lens.
2. Apply 1.5 volts to the charge motor. (Attach the minus (-) from the D.C. power supply to the motor plus (+) for low gear operation.)
3. If not within tolerances, change the adjusting collar

This adjustment assures that the AE, automatic diaphragm, and mirror mechanism have sufficient overcharge.

Collars: (A): AE Overcharge
(B): Shutter Overcharge
(C): AE Overcharge

(If (A) is used to adjust overcharge, there should be space between shutter charge lever and main charge lever when the charge cam is at its maximum. After adjustment (A) must have some possible movement in the normal direction.

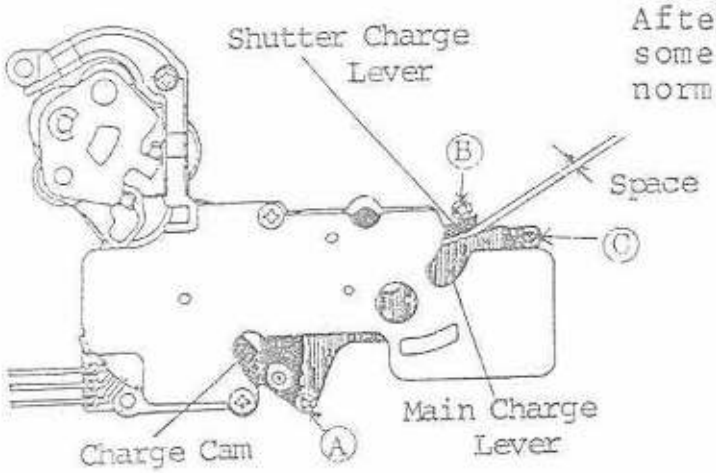


Fig. 1: Charge Complete

2. Shutter Overcharge

Standard: Fig. 2

Tools: DC Power Supply

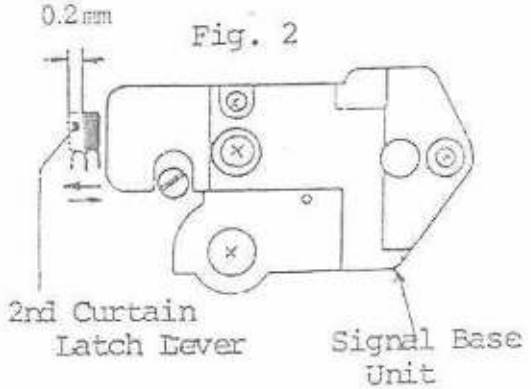


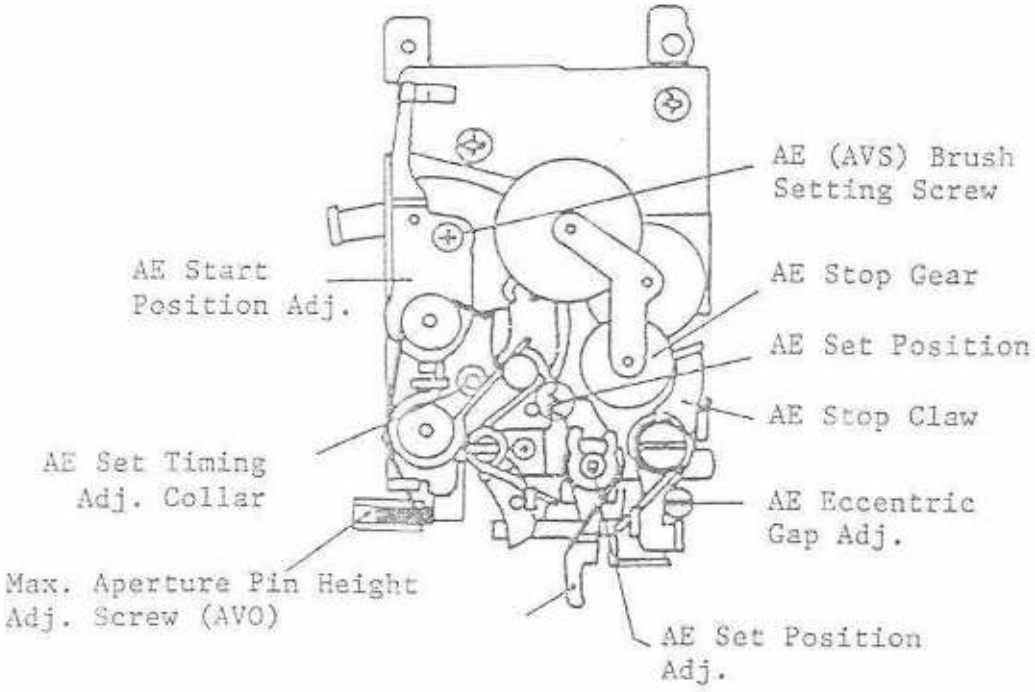
Fig. 2

Adjustment:
1. Apply 1.5 volts to the charge motor.
2. If not within tolerances, change the adjusting collar (Fig. 1).

The 1st curtain sets first and then the 2nd curtain. To insure proper setting of the 2nd curtain, after adjustment (B) must have some possible movement in the normal direction (Fig. 1).

ADJUSTMENTS POSSIBLE AFTER DISASSEMBLING THE FRONT PANEL UNIT

Of the front panel units the AE unit and mirror mechanism (mirror 45° angle) require adjustment. Lubricate lever friction surfaces with Lozoid #72090, but use a small enough amount to insure against splatter.


AE (AVS) Brush Setting Screw
AE Start Position Adj.
AE Stop Gear
AE Set Position
AE Stop Claw
AE Set Timing Adj. Collar
AE Eccentric Gap Adj.
Max. Aperture Pin Height Adj. Screw (AVO)
AE Set Position Adj.

Whe the AE unit is replaced, check AE eccentric gap, AE overcharge, and maximum aperture pin height. The other points are guaranteed by individual parts tolerances.

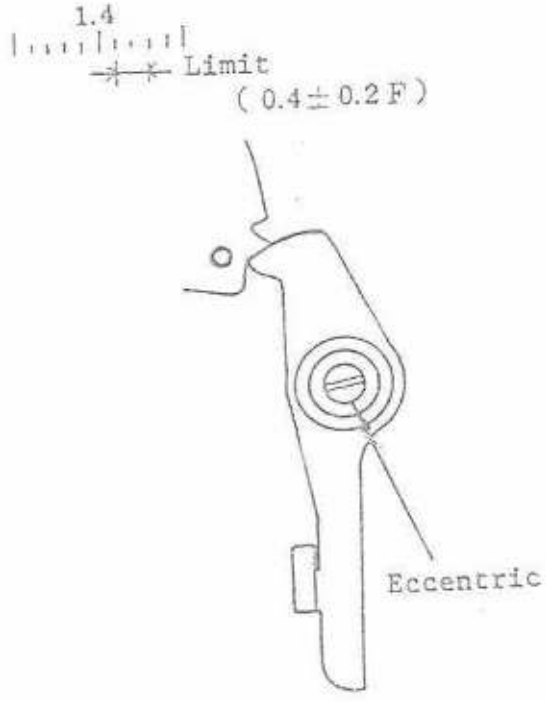
1. AE Set Position Adjustment

   Standard: 0.4 ±0.2f (with f/1.4 lens)

   Tools: AE Tool Standard Lens

   Adjustment
   1) Attach a tool standard lens, and charge the front panel.
   2) If the tool lens pointer does not stop within the limits adjust the eccentric.

   Notes: This adjustment is not normally necessary. Close parts tolerances insure that it is usually correct.



Notes: This adjustment also affects the other AE unit adjustments: AE set timing, AE start position, and AE overcharge.

If a tool lens is not available, install an ordinary standard lens (to place a load on the aperture signal charge lever) and adjust to obtain seven turns plus six teeth, ±1 tooth (1 tooth=0.1f; 1 rev.=1.2f).

2. AE Set Timing

Standard: AE set position: 0.4±0.2f
Front Panel's various levers seting: within 0.6f
AE overcharge: >1.1f

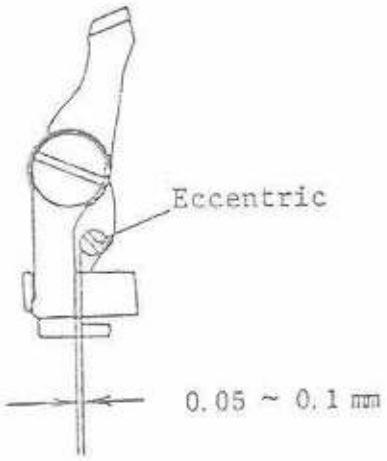
Tools: AE Standard Tool Lens

Adjustment
1) AE set timing must be adjusted so that the above standard are met.
2) Attach a tool lens, and adjust by changing with the AE set timing collar. (Ref: T80 R.G. pg. 14)

Note: This collar adjustment affects the other front panel adjustments. If the tool lens is not available, be very careful with this adjustment. Adjust by counting the stop gear teeth.

3. AE Eccentric Gap Adjustment

Standard: 0.05 - 0.1mm
Adjustment:
With the mechanism wound, adjust with the eccentric.



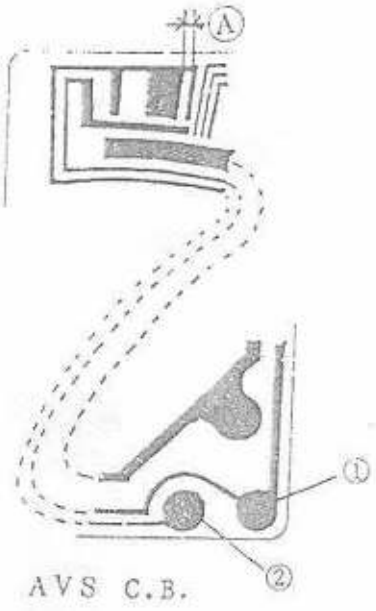
4. AE Start Position

Standard: Infinity Resistance between (1) & (2).

Tool: FD standard lens

Adjustment:
Loosen AE brush screw and adjust brush position. Baising the adjustment toward the left helps prevent unnecessary error mark display.

Always check after other AE unit adjustments are made.



AVS C.B.

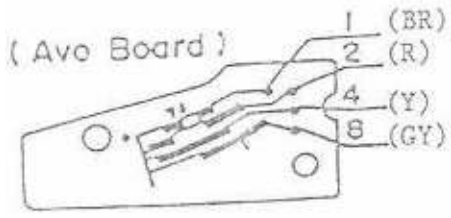
5. AVO Adjustment

1) Connect the plus (+) probe of a multimeter to the gray lead (AV08) from the AE unit and ground the minus (-) probe to a metal part of the front panel.

2) Set a depth gauge to 7.025 mm and check whether the AVO height is correct by confirming that switching between the f/2.5 and f/2.8 levels occurs within ±0.03 mm of this height.

3) AVO is adjusted by means of a screw inside the maximum aperture compensation pin. (The screw is locked with G103; dissolve it with keton.) After making the adjustment, paint the screw with G103.

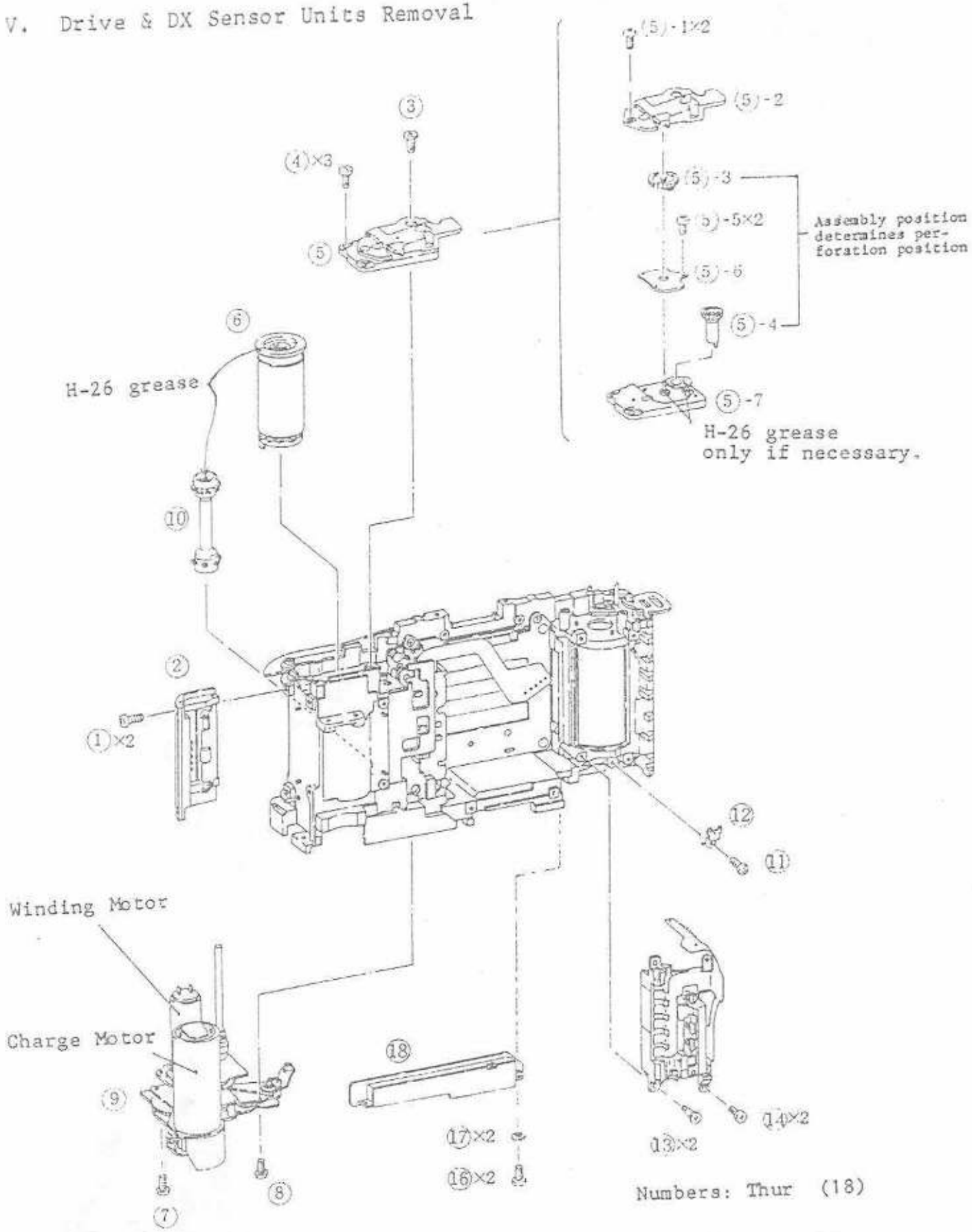
Note: If a depth gage is not available use a known-good f/1.8 lens and f/2.0 lens and adjust so the correct maximum aperture is displayed on the external LCD.



Checkpoint

F NO.	5.6	4.5	4.0	3.5	2.8	2.5	2.0	1.8	1.4	1.2
(mm) ±0.05	5.70	6.00	6.30	6.57	6.90	7.15	7.46	7.72	8.10	8.38
Avo 8	1	1	1	1	1	0	0	0	0	0
Avo 4	0	1	1	1	1	1	1	1	1	0
Avo 2	1	1	1	0	0	0	0	1	1	1
Avo 1	0	0	1	1	0	0	1	1	0	0
Changeover Points	5.85	6.15	6.435	6.74	7.025	7.305	7.59	7.91	8.24	

V. Drive & DX Sensor Units Removal



See pg. 34, 35

When installing (7) and (8) in (9), move the AL cover out of the way.

1. Drive Unit (9)

1.1 Disassemble and reassemble with the shutter charged.
1.2 By removing sprocket screw (3) and screws (7) and (8), the unit can be removed.
1.3 Reassembly is facilitated if extensions are soldered to the winding motor leads before removal.
1.4 No-load Currents (6V Input)

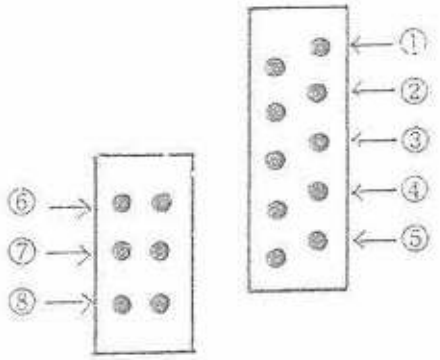
Winding Motor:	High:	< 70mA (Spool turns)
	Low :	< 50mA (Spool & Sprocket turn)
Charge Motor:	High:	< 200mA
	Low :	< 180mA

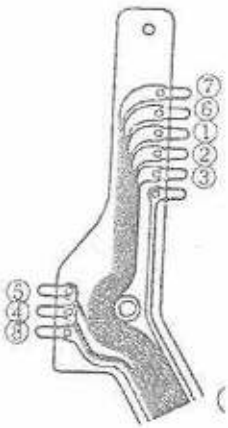
Reverse polarity for high/low switching.

1.5 Post-assembly Checks
1) Both sprocket and spool should have a little thrust play.
2) Apply 6V to both motors and check operation of the sprocket, spool, and charge mechanism.

2. DX Unit (15)

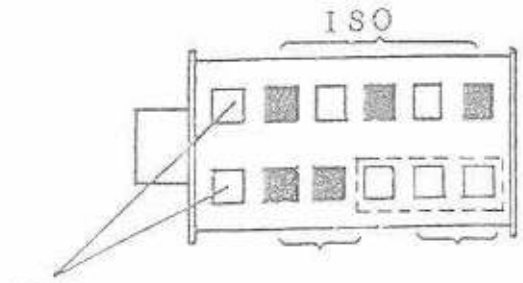
2.1 Only the complete unit is stocked.
2.2 Before disassembling the camera, check the LCD display with cartridges coded for ISO 100 and 1000, 12 and 20, or 24 and 36 exposures.
2.3 With the uninstalled unit check continituity between the pin pairs and pin to flex connections.



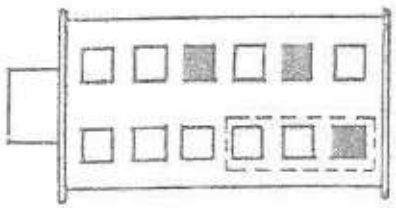


(D FLX)

Continuity between pin pairs
Continuity between like numbers of pins and DX flex connections.
Pin Assignments:
1 thru 5: ISO Film Speed
6 & 7 : Exposures
8 : Ground
Ref: (STG-022) DX System



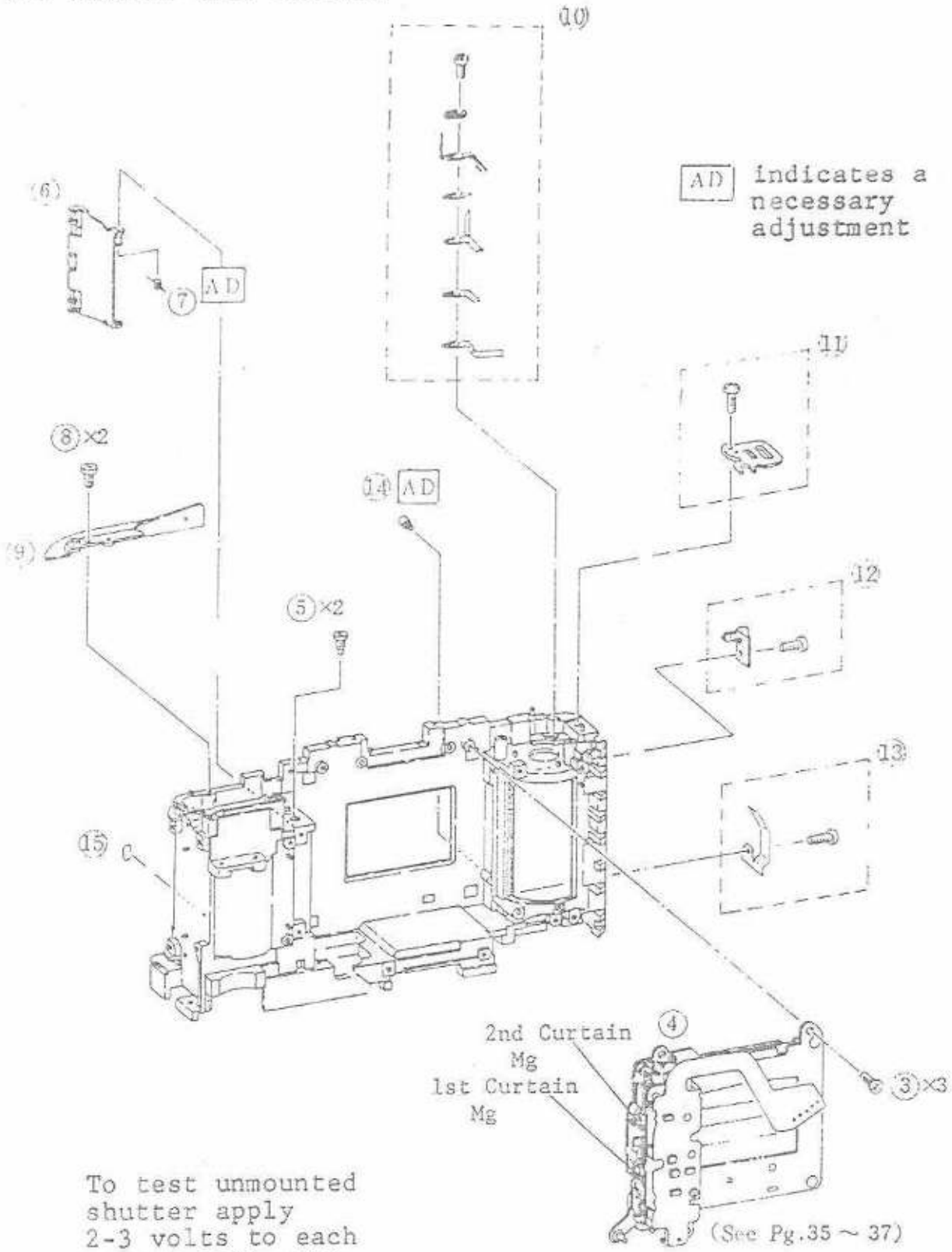
ISO 100, 36 exp. +3,-1EV Latitude



ISO1000, 24 exp. ±1EV Latitude

■ Non-conductive
□ Conductive
[....] N/A for this camera.

VI. Shutter Unit Removal



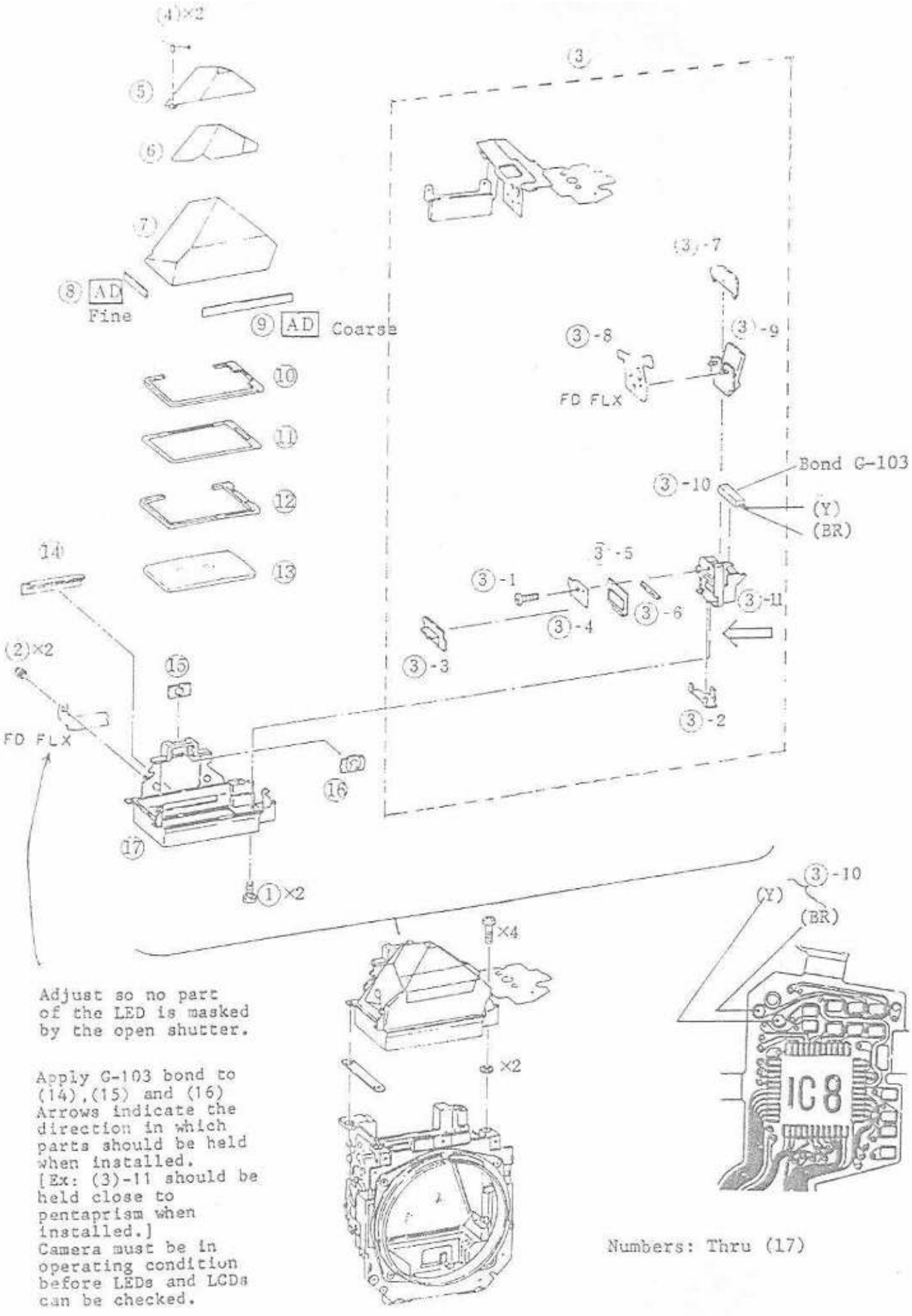
To test unmounted shutter apply 2-3 volts to each magnet coil. The upper coil connection is plus (+). Curtains should operate with as little as 2V applied.

(See Pg.35 ~ 37)

1. AL Cover Spring Adjustment
Tension with the cover roller 2 -3mm away from the spool should be 65-80g. If too weak, film will wind too loosely at low temperatures. If too strong, film will not load with the proper initial offset. This also will result in loose winding onto the spool.

2. Film Guide Shaft (14) Adjustment
The shaft diameter should be the same as the width of the inner guide rail ±0.1mm. If the shaft is replaced, use the same size. When the body is replaced, select the correct size.

3. Shutter Unit
Charge torque must be less than 1220gcm.
If the shutter is removed with the drive base attached, they should be in the charged condition.
When the shutter is replaced, attach the drive unit and check overcharge before installing the new shutter. (1st curtain sets first and then 2nd curtain. 2nd curtain should have some play.)
The shutter can be removed after the front and top covers, charge motor, and main flex are removed.



Adjust so no part of the LED is masked by the open shutter.

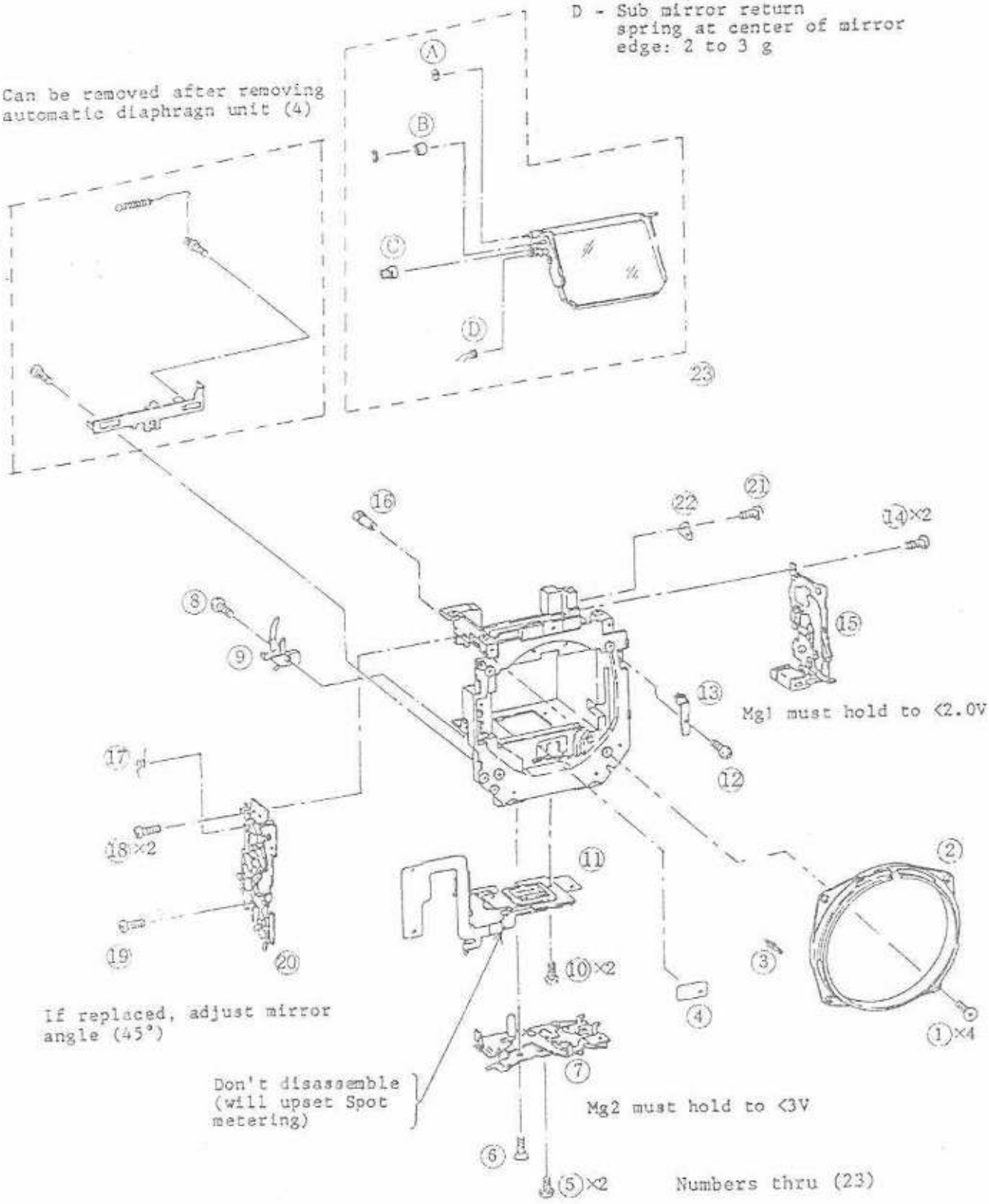
Apply G-103 bond to (14),(15) and (16) Arrows indicate the direction in which parts should be held when installed. [Ex: (3)-11 should be held close to pentaprism when installed.] Camera must be in operating condition before LEDs and LCDs can be checked.

Numbers: Thru (17)

VIII. Mirror Box Disassembly

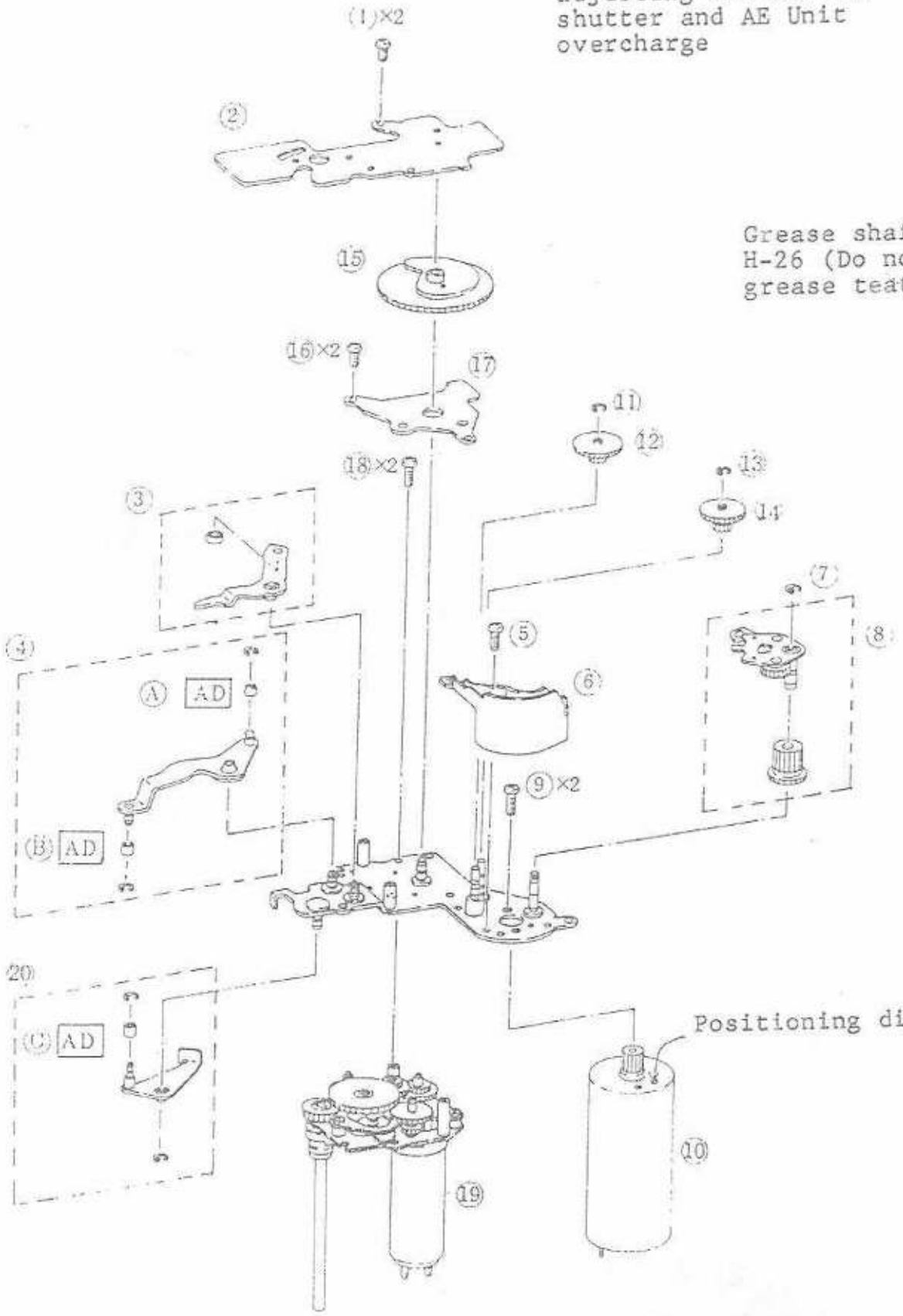
In principle, this mechanism is like the A and other T series cameras. Operate the mirror box several times to learn the lever operation before diosassembling it.

(18) - Adj. Collars (A), (B), (C), & (D)
A - Laterial Play: 0.1mm
B - 0.1mm space between sub and main mirror when up.
C - Main mirror to cushion + 0.2 , - 0.3mm
D - Sub mirror return spring at center of mirror edge: 2 to 3 g


Can be removed after removing automatic diaphragn unit (4)
Mg1 must hold to <2.0V
If replaced, adjust mirror angle (45°)
Don't disassemble (will upset Spot metering)
Mg2 must hold to <3V
Numbers thru (23)

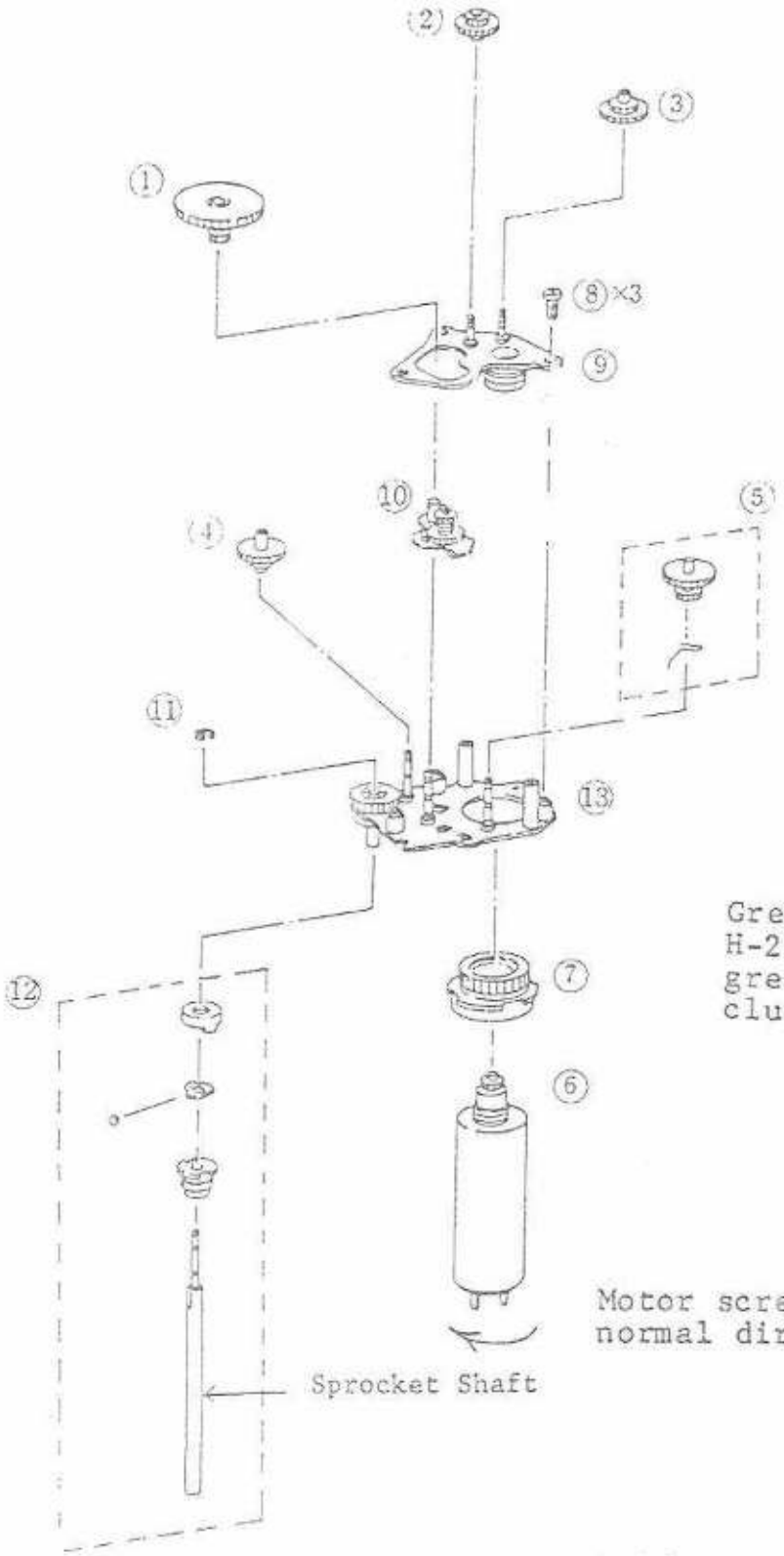
IX. Drive Unit Disassembly
(Mechanical Charge Geartrain)

(4)-(A) & (B) and (20)-C are adjusting collars for shutter and AE Unit overcharge



Numbers Thru (21)

IX. Drive Unit Disassembly
(Film Winding Geartrain)



Clutch: (With gear held turns in spoll direction only)

Numbers Thru (13)

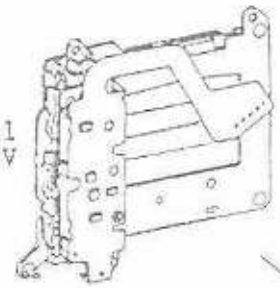
X. Shutter Unit Disassembly

Shutter should be released

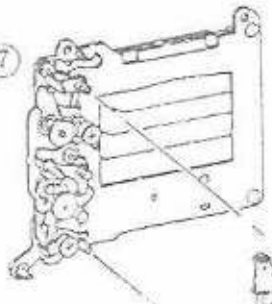
Pre-assembly Shutter Check
(Place unit in a body and connect leads)

1st Curtain TT: 2.7±0.1ms
2nd Curtain TT: <0.03ms fast
X sync: 0.? - 0.3mS
Note: Body is used as mounting stand.

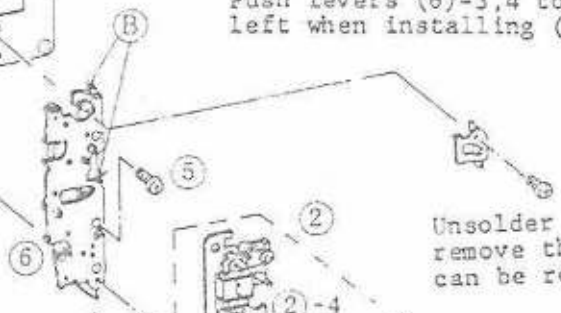
Apply 2 -3V to each coil
MG min. hold voltage <2V



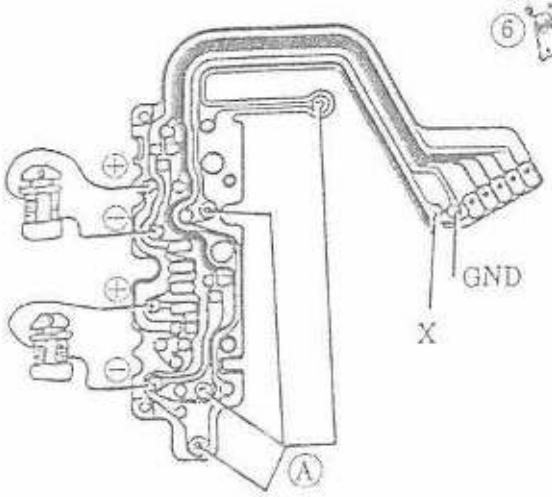
(4) Before disassembling (6) detension the blade drive springs by backing off about 12 turns on the worm gears.

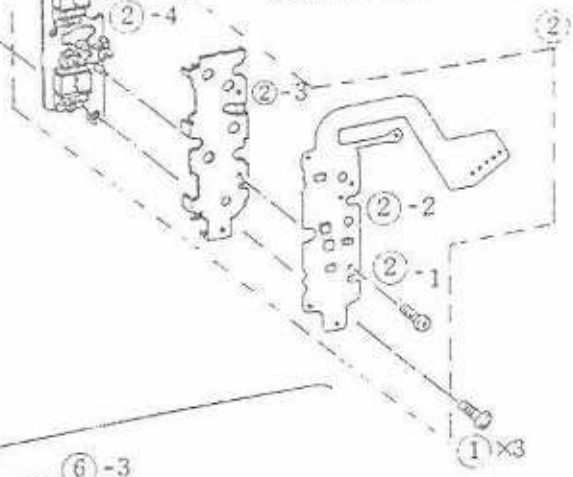


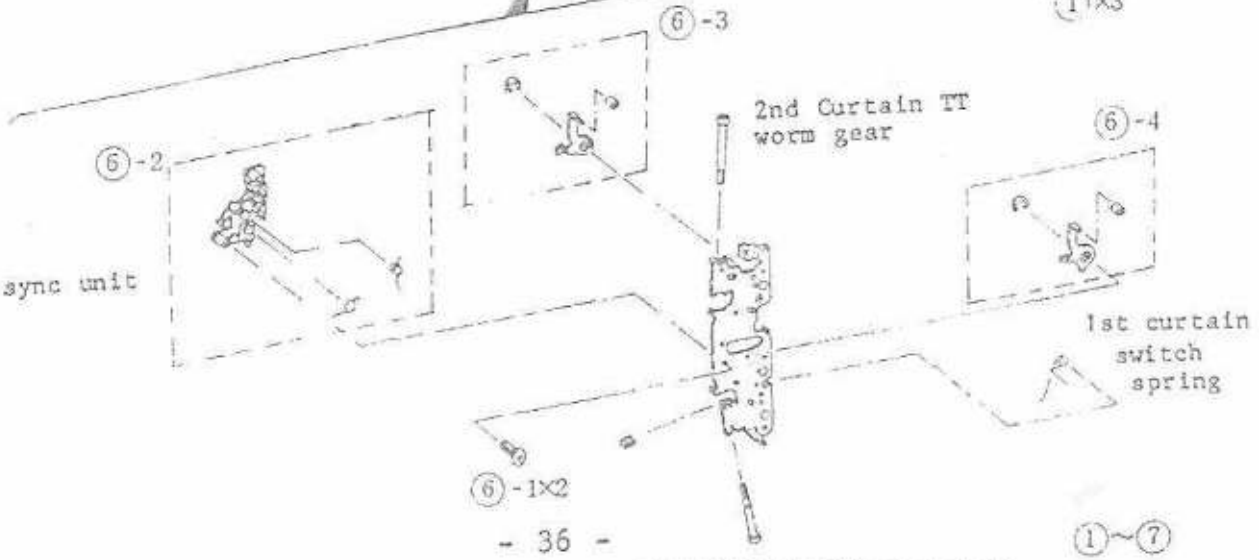
Push levers (6)-3,4 to the left when installing (2).



Unsolder 4 points (A) and remove three screws (1). (2) can be removed intact.



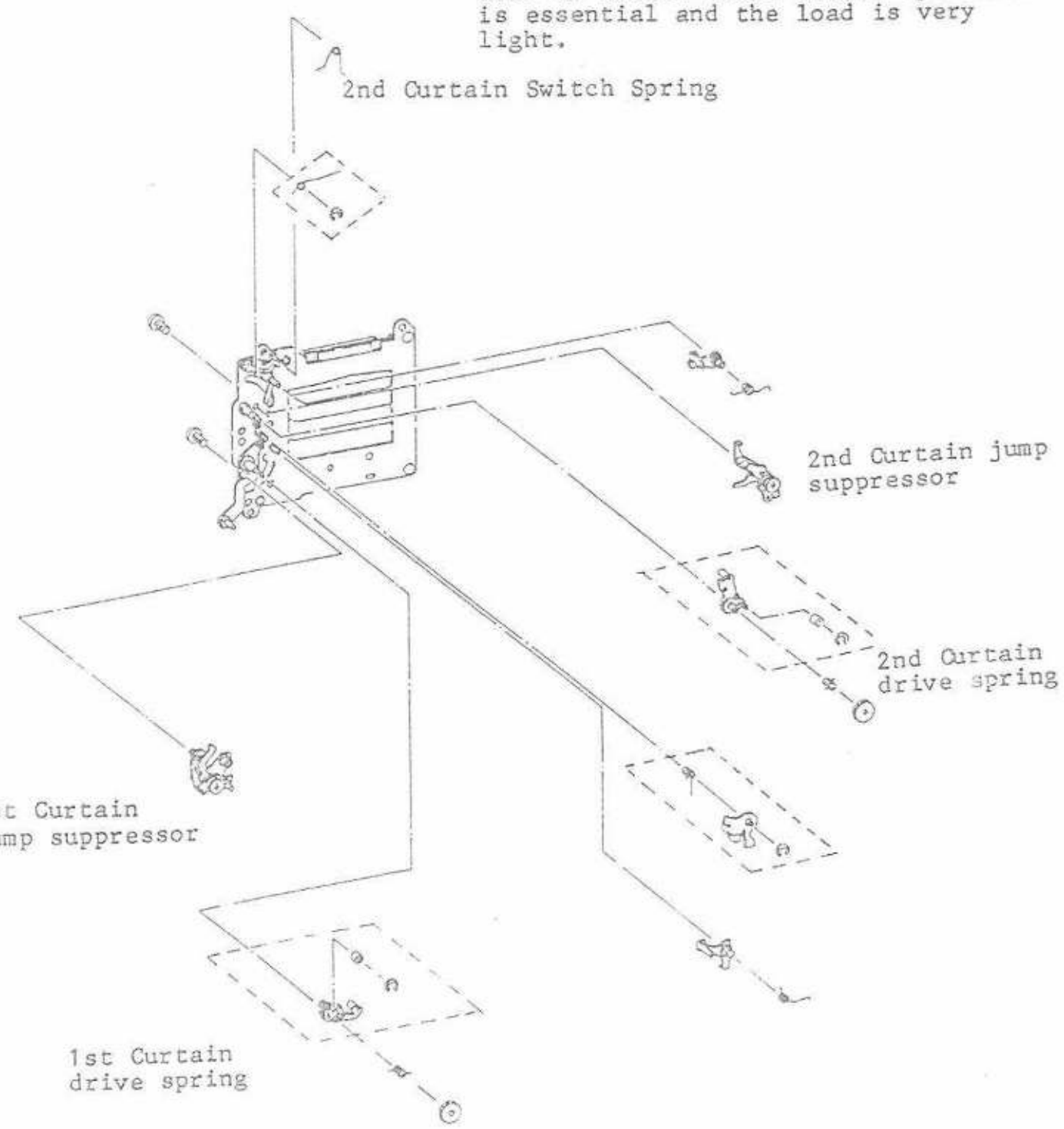




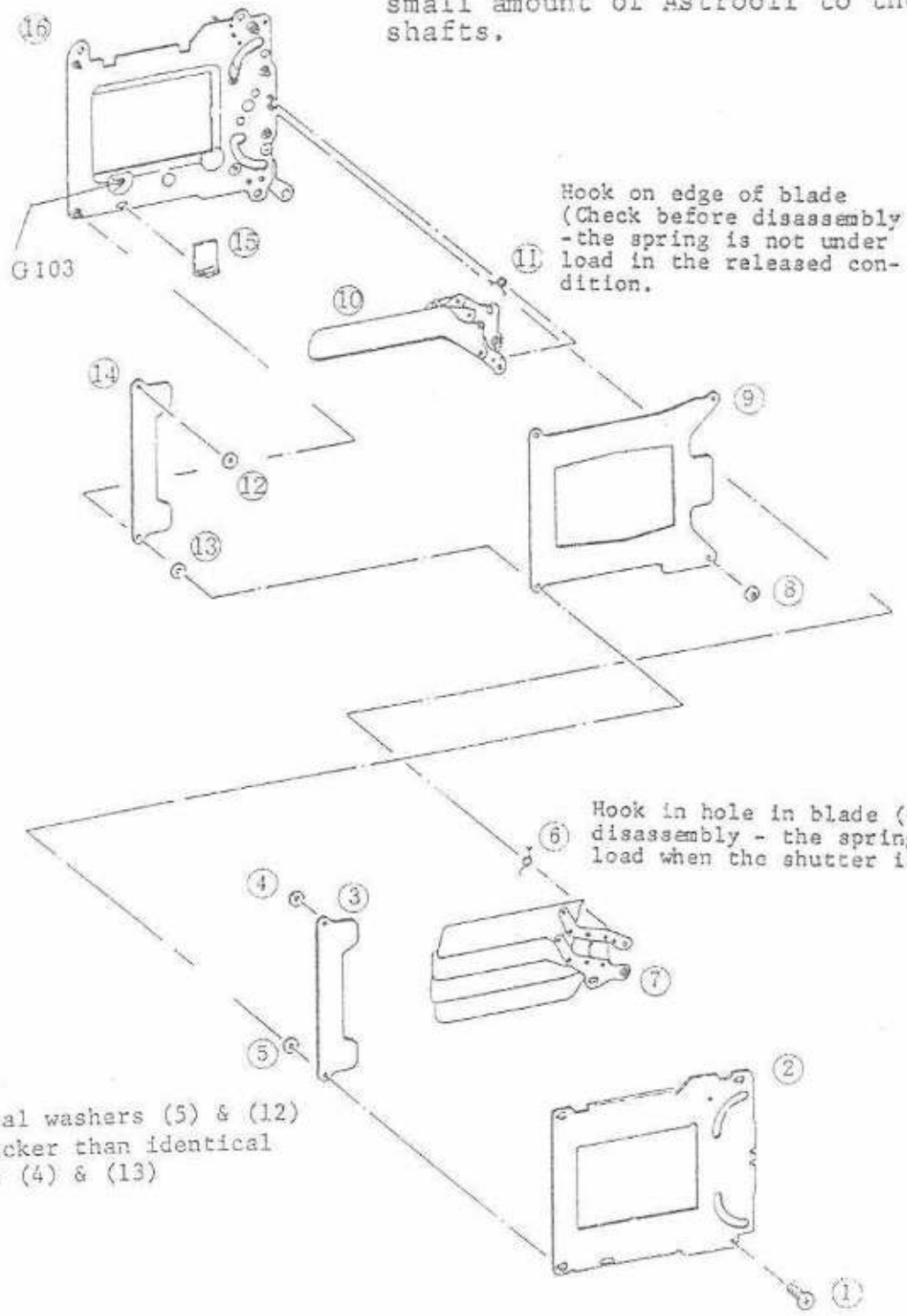
①~⑦

X. Shutter Unit Disassembly (Cont.)

Lube: Two lubricants are used in the shutter. H-26 is used on shafts and lever friction surfaces that are under a fairly heavy load. Astro-oil is used on shafts where smooth operation is essential and the load is very light.


2nd Curtain Switch Spring
2nd Curtain jump suppressor
2nd Curtain drive spring
1st Curtain jump suppressor
1st Curtain drive spring

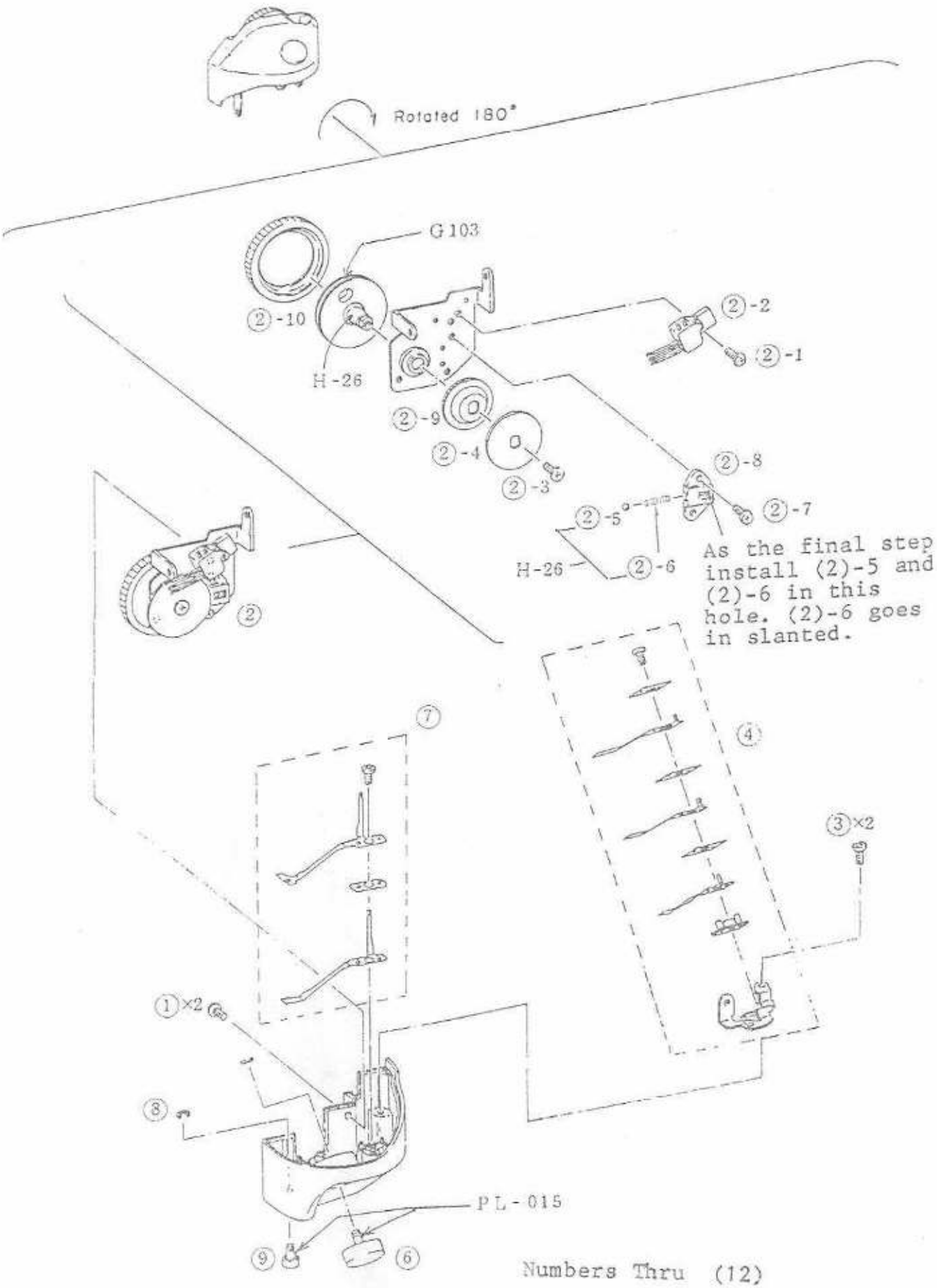
Assemble and disassemble in released condition
Whe changing shutter blades apply a small amount of Astrooil to the pivot shafts.



Identical washers (5) & (12) are thicker than identical washers (4) & (13)

Numbers thru (16)

XI. Grip Head Unit Disassembly



Numbers Thru (12)

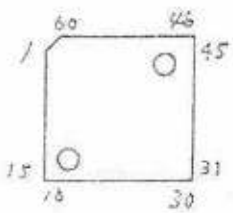
XII. Flex Units & IC Replacement Adjustments Table

Part Name	Adjustments (In order from the left)
Main Flex Unit*	VR8, VR2, VR3, VR4, VR1, VR5, VR6, VR7.
FD Flex Unit	N/A
Motor Flex Unit	N/A
DX Flex Unit	N/A (DX Sensor Unit is service part)
Spot Flex Unit	N/A
Shutter Flex Unit	N/A
DC/DC Convertor	N/A
IC-1 (Metering)	R5, VR3, VR4.
IC-2 (Metering-S)	Spot Flex Unit is pre-adjusted at factory
IC-3 (MPU)	N/A
IC-4 (I/O)	R7, R8, R13, R10 & Main Flex Adjustments
IC-5 (SPU)	N/A
IC-6 (LCD-1 Drive)	N/A (Service Part includes circuit board)
IC-7 (LCD-2 Drive)	N/A
IC-8 (LED Drive)	N/A
IC-9 (Drive)	N/A (Change IC-9 & IC-10 as pair)
IC-10 (Drive)	N/A

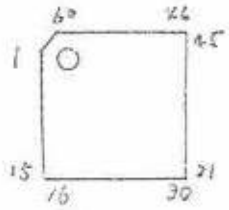
*: When Main Flex is changed, put leader protrusion and aperture accuracy pads in same condition as removed flex. Perform the partial area alignment when the main flex or IC-1 is replaced.

Adjustment	Incorrect Adj Indication	Resistance (Ohm)	Page
VR1 (Gain)	Exp. accuracy varies with brightness (tilt)	9K-13K	11,12
VR2 (Spot)	Incorrect Exp Spot(Level)	15K-30K	11,12
VR3 (Partial)	" " Part "	18K-40K	11,12
VR4 (Average)	" " Avg. "	54K-93K	11,12
VR5 (AVEF)	Incorrect flash aperture	0-10K	5
VR6 (FELK)	Incorrect FELK exposure	0-10K	6
VR7 (TTL)	Incorrect Flash TTL exp.	0-10K	6
VR8 (T)	Incorrect shutter speed	0-300K	3, 4
R5 (NULL)	Wrong exp. at <EV +2	4.3K-300K	9
R7	Flash doesn't commucate mode to camera	4.02K-7.87K	18
R8	Exp. accuracy different above and below EV10	64.9-1.3K	19
R10	Wrong oper. w/low battery	12.4K-20K	6
R13	Unnecessary segments of LCD2 visible in finder	5.62K-10K	11

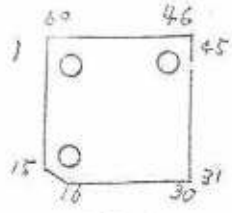
IC Pin Diagrams



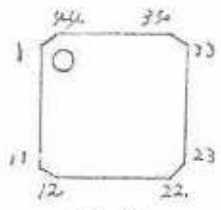
IC-3



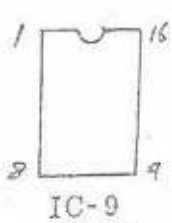
IC-4



IC-5



IC-7
IC-8



IC-9
IC-10

SHUTTER SPEED VARIATION
(BASED ON ±EV)

	4000	2000	1000	500	250	125	60	30	15	8	4	2	1 "	2 "	4 "	8 "	16 "	32 "
+0.500	0.346	0.691	1.381	2.762	5.524	11.05	22.10	44.19	88.39	176.8	353.6	707.1	1414.2	2828	5657	11314	22627	45255
+0.450	0.333	0.667	1.334	2.668	5.336	10.67	21.34	42.69	85.38	170.8	341.5	683.0	1366.0	2732	5464	10928	21857	43713
+0.400	0.322	0.644	1.289	2.577	5.154	10.31	20.62	41.23	82.47	164.9	329.9	659.8	1319.0	2639	5278	10556	21112	42224
+0.350	0.311	0.622	1.245	2.489	4.979	9.957	19.92	39.83	79.66	159.3	318.6	637.3	1274.6	2549	5098	10197	20393	40786
+0.300	0.300	0.601	1.202	2.405	4.809	9.618	19.24	38.47	76.95	153.9	307.8	615.6	1231.1	2462	4925	9849	19698	39397
+0.250	0.290	0.581	1.161	2.323	4.645	9.291	18.58	37.16	74.33	148.7	297.3	594.6	1189.2	2378	4757	9514	19027	38055
+0.200	0.280	0.561	1.122	2.244	4.487	8.974	17.95	35.90	71.79	143.6	287.2	574.3	1148.7	2297	4595	9190	18379	36758
+0.150	0.271	0.542	1.084	2.167	4.334	8.669	17.34	34.67	69.35	138.7	277.4	554.8	1109.6	2219	4438	8877	17753	35506
+0.100	0.262	0.523	1.047	2.093	4.187	8.373	16.75	33.49	66.99	134.0	267.9	535.9	1071.8	2144	4287	8574	17148	34297
+0.050	0.253	0.505	1.011	2.022	4.044	8.088	16.18	32.35	64.70	129.4	258.8	517.6	1035.3	2071	4141	8282	16564	33129
0	0.244	0.488	0.977	1.953	3.906	7.813	15.62	31.25	62.50	125	250	500	1000	2000	4000	8000	16000	32000
−0.050	0.236	0.472	0.943	1.887	3.773	7.546	15.09	30.19	60.37	120.7	241.5	483.0	965.9	1931.9	3864	7727	15455	30910
−0.100	0.228	0.456	0.911	1.822	3.654	7.289	14.58	29.16	58.31	116.6	233.3	466.5	933.0	1866.1	3732	7464	14929	29857
−0.150	0.220	0.440	0.880	1.760	3.521	7.041	14.08	28.16	56.33	112.7	225.3	450.6	901.3	1802.5	3605	7210	14420	28840
−0.200	0.212	0.425	0.850	1.700	3.401	6.801	13.60	27.20	54.41	108.8	217.6	435.3	870.5	1741.1	3482	6964	13929	27858
−0.250	0.205	0.411	0.821	1.642	3.285	6.569	13.14	26.28	52.56	105.1	210.2	420.4	840.9	1681.8	3364	6727	13454	26909
−0.300	0.198	0.397	0.793	1.586	3.173	6.346	12.69	25.38	50.77	101.5	203.1	406.1	812.3	1624.5	3249	6498	12996	25992
−0.350	0.192	0.383	0.766	1.532	3.065	6.130	12.26	24.52	49.04	98.07	196.1	392.3	784.6	1569.2	3138	6277	12553	25107
−0.400	0.185	0.370	0.740	1.480	2.960	5.920	11.84	23.68	47.37	94.73	189.5	378.9	757.9	1515.7	3031	6063	12126	24252
−0.450	0.179	0.357	0.715	1.430	2.860	5.719	11.44	22.88	45.75	91.51	183.0	366.0	732.0	1464.1	2928	5856	11713	23425
−0.500	0.173	0.345	0.691	1.381	2.762	5.524	11.05	22.10	44.19	88.39	176.8	353.6	707.1	1414.2	2828	5657	11314	22627

3. Test Equipment
   1. Regulated D.C. Power Supply
      (Set to 6 volts, with 0.4 Ohm resistor in series to simulate battery internal resistance)
   2. New FD50mm f/1.4
   3. Ammeter
   4. 36 exp. TRI-X film

	Condition	Under
1.	With main switch at Lock (L),	100uA
2.	With main switch at A	100uA
3.	Exposure Metering (SW1 on)	150mA
4.	Winding (High mode, 20th frame, f/5.6)	1450mA
4.	Rewinding (with film)	450mA

	Rewinding time	12 seconds

S E R V I C E T O O L S L I S T

C A N O N T 9 0

TEST EQUIPMENT	Part No. (New tools only)
Extended Range Shutter Tester FS-5300	CY9-7066-00C XXX
TTL-OTF Photoreceptor DIR-201 (used with modified EF 500)	CY9-7076-000
Multi-camera Tester EF 500AC (Modified for DIR-201)	
Digital Multimeter (DMM) (1mV, 1uA specs.)	
Universal 600mm Range-viewfinder Collimator or equivalent.	
Oscilloscope	
Regulated Voltage Power Supply (LVPS)	
AE Standard Tool Lens	
Universal Type 90° Collimator or Simplified 90° Collimator	
42.14mm Dial Gauge Set	
Dial Tension Gauge- 100g	
2.5mm Hex Key (Mirror Angle)	
Sub-mirror Spanner (New F-1 shutter spanner)	

T90 SERVICE PARTS POLICY

THE POLICY OF CAMERA SERVICE, TOKYO, IS TO STOCK ALL PARTS NECESSARY TO EFFECT EFFICIENT ECONOMICAL SERVICE. IT IS NEITHER NECESSARY NOR TECHNICALLY FEASIBLE TO STOCK SEPARATELY EVERY PART THAT GOES INTO EACH PRODUCT.

IN ESTABLISHING THE SPARE PARTS LIST, WE CONSIDER REPAIR DIFFICULTY, LABOR COST, SPECIAL TOOL REQUIREMENTS AND INDIVIDUAL PARTS Vs. ASSEMBLED UNIT COST TO DETERMINE IN WHICH FORM PARTS WILL BE STOCKED.

PARTS LINE ITEMS: Approx. 500 (INCLUDING 380 NEW PARTS)

1. THE UNITS LISTED BELOW ARE STOCKED AS UNITS BECAUSE THEY REQUIRE TOOLS OR TECHNICS NOT NORMALLY AVAILABLE AT FIELD SERVICE LEVEL.

CG1-0860-000	FOCUSING SCREEN E	CG9-2684-000	FRONT COVER ASSY
CG1-0868-000	AUTO DIAPHRAGM UNIT	CG9-2685-000	SELF TIMER LED ASSY
CG1-0869-000	AE UNIT	CG9-2686-000	SPOOL ASSY
CG9-2670-000	AL COVER ASSY		
CG9-2673-000	DX SENSOR ASSY	CY1-1234-000	DTTL/SPOT FLEX ASSY
CG9-2675-000	ROLLER HOLDER ASSY	CY1-1248-000	1ST CURTAIN BRAKE ASSY
CG9-2679-000	STOP-DOWN MECH. ASSY	CY1-1249-000	2ND CURTAIN BRAKE ASSY
CG9-2680-000	EYEPIECE	CY1-1250-000	SHUTTER FLEX ASSY
CG9-2681-000	EYEPIECE SHUTTER ASSY	CY1-1251-000	SHUTTER MAGNET ASSY

2. IN ADDITION TO THE ABOVE, WHICH ARE STOCKED ONLY AS UNITS, SOME INDIVIDUAL PARTS ARE STOCKED FOR THE FOLLOWING UNITS IN ADDITION TO THE UNIT.

CG1-0851-000	TOP COVER UNIT	CG9-2677-000	RELEASE BUT./DIAL ASSY
CG1-0852-000	BACK COVER UNIT	CG9-2683-000	BATTERY PACK UNIT
CG1-0857-000	MOTOR FLEX UNIT	CG9-2689-000	MIRROR ASSY
CG1-0867-000	MIRROR MECHANISM	CY1-1232-000	REWIND MECH. ASSY
CG1-0871-000	SHUTTER UNIT	CY1-1252-000	MAIN FLEX ASSY
CG9-2672-000	MOTOR SIG. BASE ASSY	CY1-1253-000	FINDER FLEX ASSY

3. INDIVIDUAL ELECTRICAL COMPONENTS WHICH MAY REQUIRE REPLACEMENT ARE STOCKED. OTHERS ARE LISTED ON THE SCHEMATIC WITH THEIR SPECIFICATIONS.

4. THE SPARE PARTS LIST IS ADJUSTED PERIODICALLY TO INSURE THE NECESSARY PARTS ARE ALWAYS AVAILABLE, AND UNNECESSARY PARTS ARE REMOVED FROM THE STOCK LIST. A COMPLETE REVIEW WILL BE CONDUCTED ONE YEAR AFTER MARKETING.

5. ASSEMBLIES SHOWN WITH THE N.S. MARK ARE SHOWN FOR CLARITY ONLY. THEY ARE NOT STOCKED IN THE FORM SHOWN.

キヤノンＴ９０サービス部品設定について

サービス部品は修理上の精度、工数、コスト、部品の使用頻度等、諸々の事由を勘案し設定している。
特にユニット部品の構成部品中で、使用頻度の少ないものはサービス部品とはしない。
キヤノンＴ９０においては次のような設定部品とする。

部品設定点数　約５００点（新規部品　約３８０点　流用部品　約１２０点）

1.下記部品はユニットのみをサービス部品とする。

CG9-0860-000	フォーカシングユニット(E Type)	CG9-2684-000	前カバーユニット
CG9-0868-000	自動絞りユニット	CG9-2685-000	Ｓ－ＬＥＤユニット
CG9-0869-000	ＡＥユニット	CG9-2686-000	スプールユニット
CG9-2670-000	ＡＬカバーユニット		
CG9-2673-000	Ｄセンサーユニット	CY1-1234-000	調光フレキユニット
CG9-2675-000	ローラーホルダーユニット	CY1-1248-000	先幕ブレーキユニット
CG9-2679-000	絞り込みユニット	CY1-1249-000	後幕ブレーキユニット
CG9-2680-000	アイピースユニット	CY1-1250-000	シャッターフレキユニット
CG9-2681-000	アイピースシャッターユニット	CY1-1251-000	シャッターＭＧユニット

2.下記部品はユニット及び使用頻度の高いと考えられる部品をサービス部品とする。

CG1-0851-000	上蓋ユニット	CG9-2677-000	キャップユニット
CG1-0852-000	背蓋ユニット	CG9-2683-000	電池蓋ユニット
CG1-0857-000	モーターフレキユニット	CG9-2689-000	ミラーユニット
CG1-0867-000	ミラーＱＲユニット	CY1-1232-000	巻戻しユニット
CG1-0871-000	シャッターユニット	CY1-1252-000	メインフレキユニット
CG9-2672-000	信号地板ユニット	CY1-1253-000	ＦＤフレキユニット

3.電気素子は一部のもの以外は、サービス部品としないが修理時のチェックが出来るよう定格を明示している。（ELECTRIC PARTS & LEADSのPARTS LISTを参照）

4.当初、サービス部品設定されていない部品でも状況に応じ、サービス部品として追加することもある。尚、今回は特にユニット部品のみを多く設定してあるので発売１年後に部品設定の見直しを行う。

5.ユニットの一部で、サービス部品としないものは N.S マークをつけてある。

CANON T-90

REF.NO.C12-1902

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MIRROR BOX I	9
MIRROR BOX II	10
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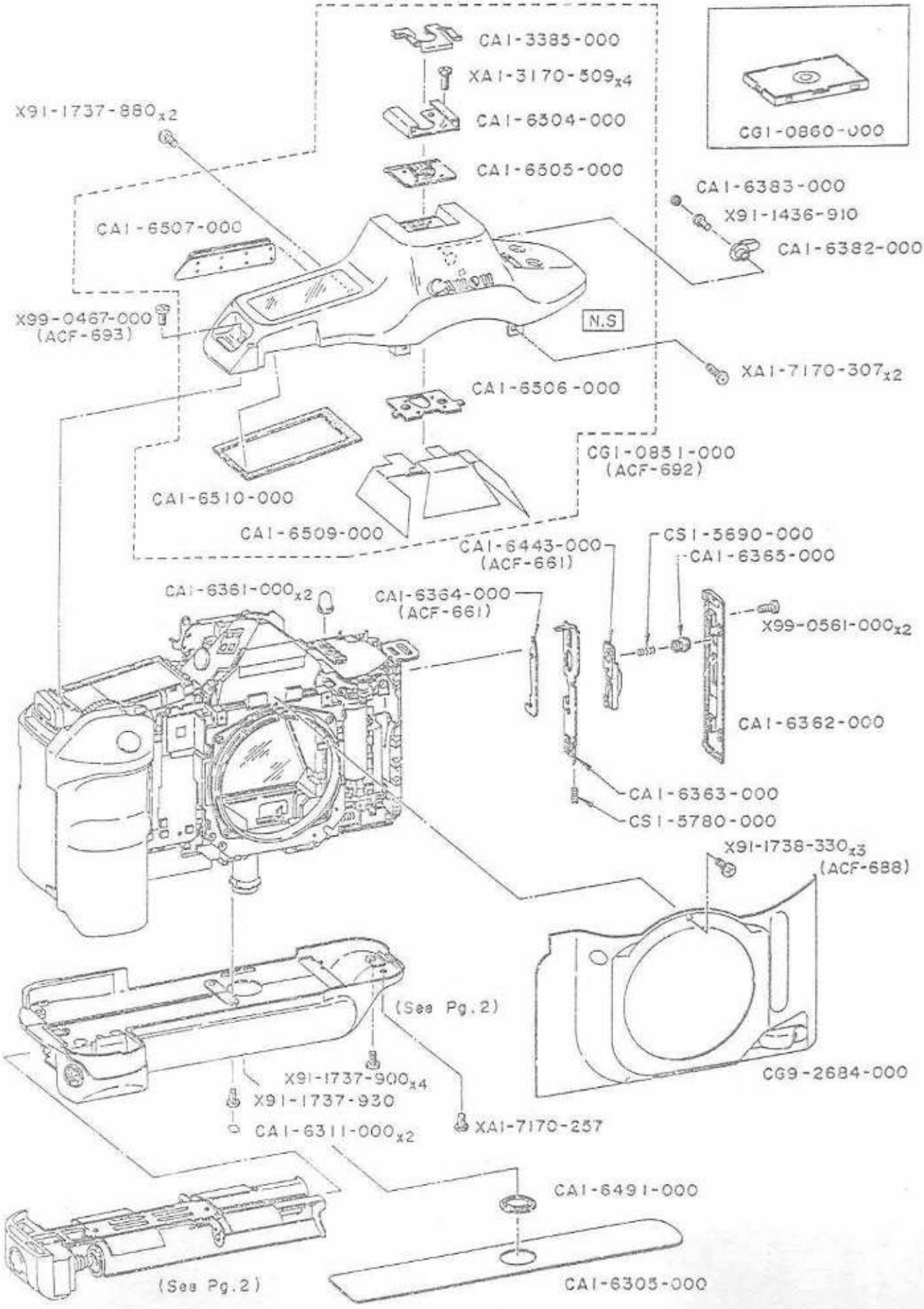
REF. NO. C12-1902

CANON T90



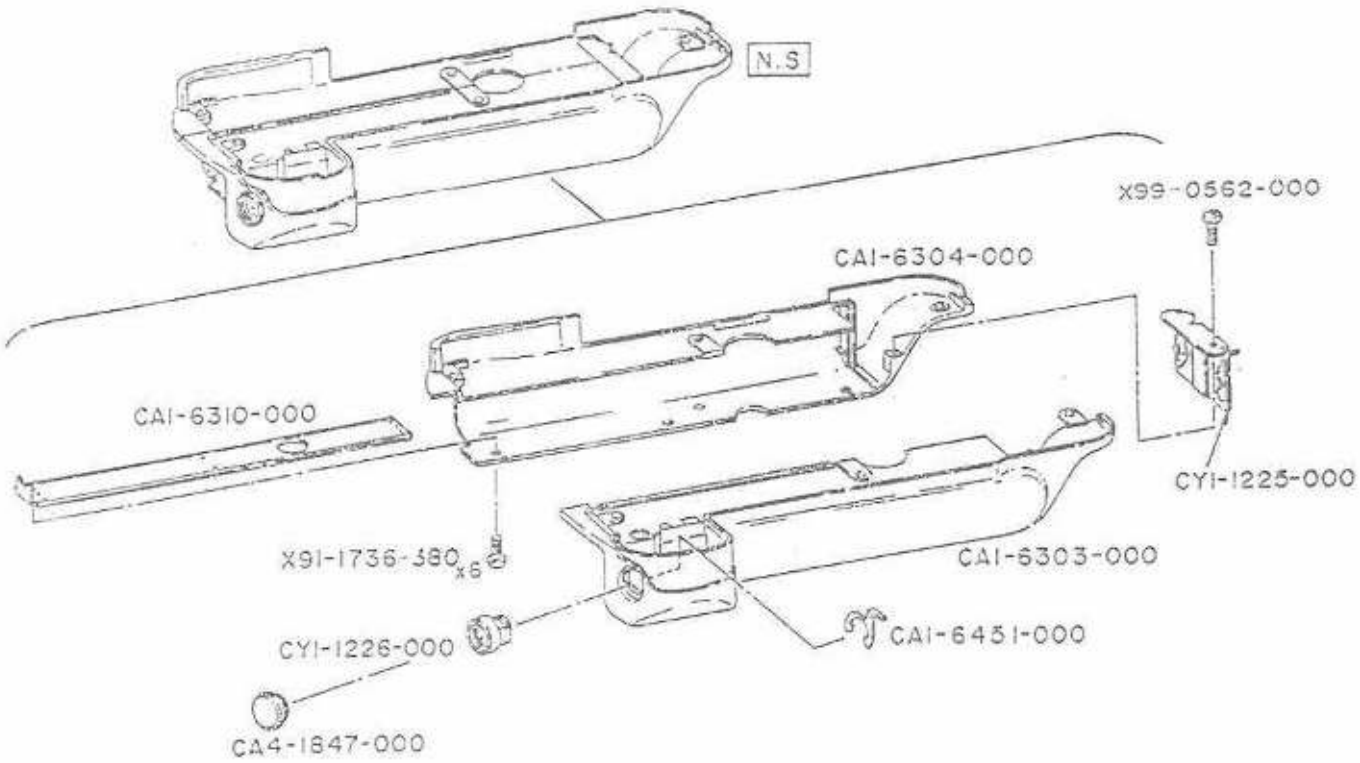
PARTS LIST

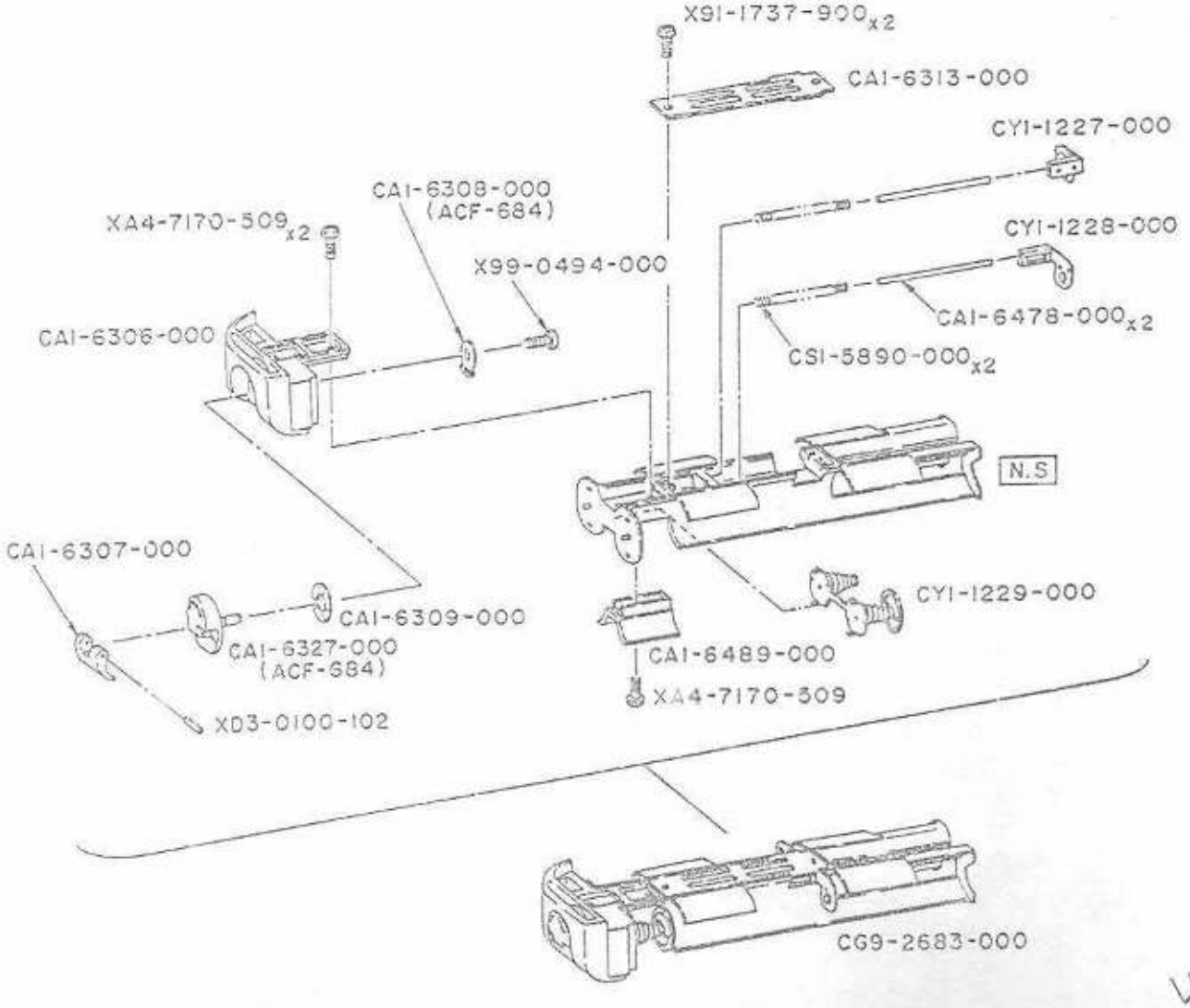
REF. NO. C12-1902

EXTERNAL PARTS

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-3385-000	C	1	SPRING, PLATE (BL)
	CA1-6305-000	C	1	SHEET, RUBBER
	CA1-6311-000	A	2	CAP
	CA1-6361-000	D	2	BUTTON, MODE
	CA1-6362-000	D	1	COVER, HOOK
	CA1-6363-000	E	1	HOOK
	CA1-6364-000	E	1	LEVER, LOCK
	CA1-6365-000	E	1	BUTTON, UNLOCK
	CA1-6382-000	D	1	LEVER, EYEPIECE
	CA1-6383-000	D	1	CAP, EYEPIECE LEVER
	CA1-6443-000	D	1	KNOB, BACK COVER
	CA1-6491-000	C	1	NUT
	CA1-6504-000	D	1	SHOE, ACCESSORY
	CA1-6505-000	E	1	BASE, ACC. SHOE
	CA1-6506-000	E	1	PLATE, SHOE MOUNTING
	CA1-6507-000	D	1	SWITCH, H.S. CONTROL
	CA1-6509-000	E	1	INSULATOR
	CA1-6510-000	E	1	SHIELD, LIGHT
	CG1-0851-000	D	1	TOP COVER UNIT
	CG1-0860-000	D	1	SCREEN E, FOCUSING
	CG9-2684-000	C	1	FRONT COVER ASSY
	CS1-5690-000	D	1	SPRING, COIL
	CS1-5780-000	D	1	SPRING, COIL
	XA1-3170-509		4	SCREW, CROSS-RECESS, FCH
	XA1-7170-257		1	SCREW, CROSS-RECESS, PH
	XA1-7170-307		2	SCREW, CROSS-RECESS, PH
	X91-1436-910		1	SCREW, CROSS-RECESS, PH
	X91-1737-880		2	SCREW, CROSS-RECESS, PH
	X91-1737-900		4	SCREW, CROSS-RECESS, PH
	X91-1737-930		1	SCREW, CROSS-RECESS, PH
	X91-1738-330		3	SCREW, CROSS-RECESS, PH
	X99-0467-000		1	SCREW, CROSS-RECESS, PH
	X99-0561-000		3	SCREW, CROSS-RECESS, PH

CANON T90


N.S
X99-0562-000
CAI-6304-000
CAI-6310-000
CYI-1225-000
X91-1736-380 x6
CAI-6303-000
CAI-6451-000
CYI-1226-000
CA4-1847-000

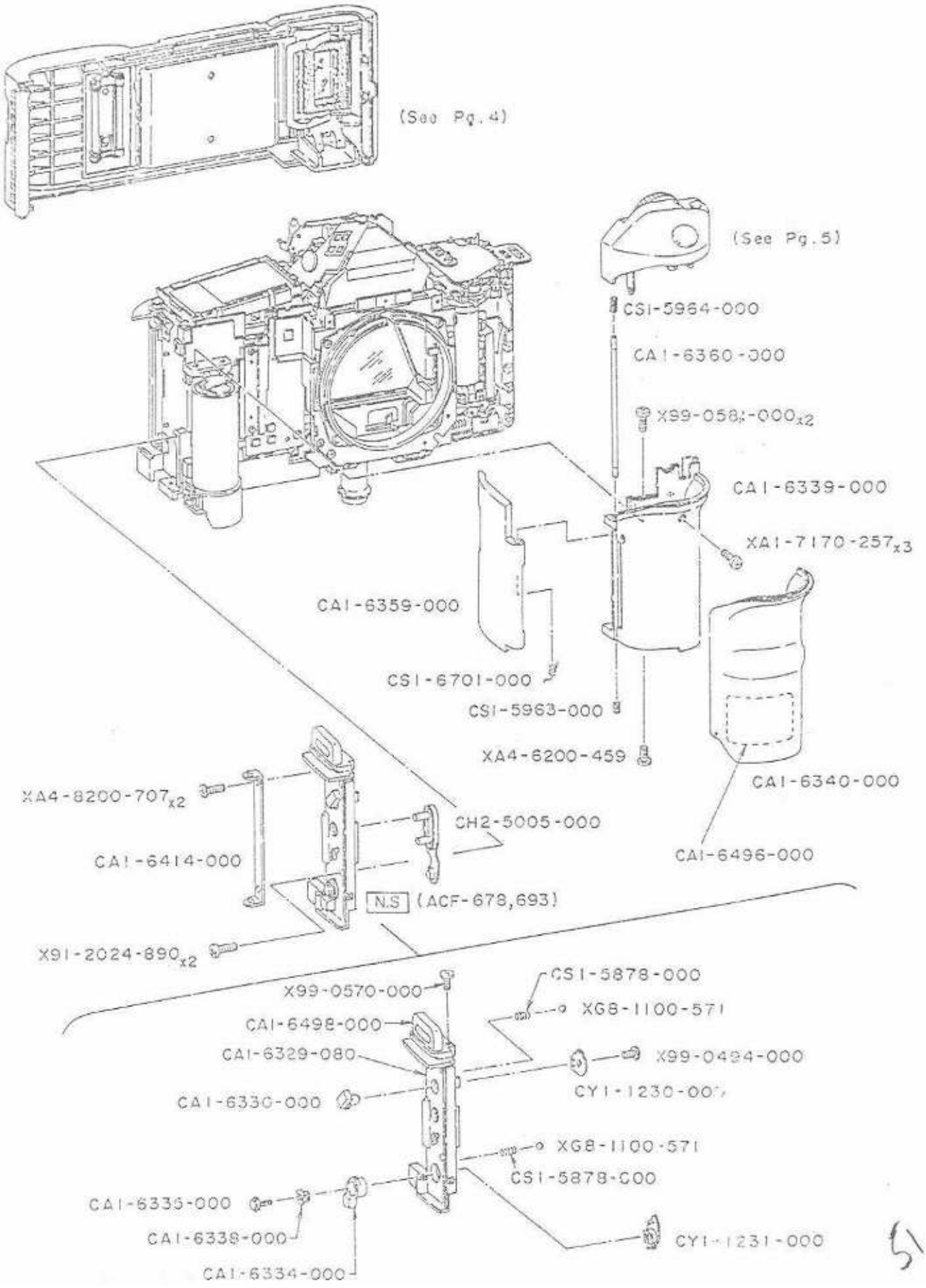

X91-1737-900 x2
CAI-6313-000
CYI-1227-000
CAI-6308-000
(ACF-684)
XA4-7170-509 x2
CYI-1228-000
X99-0494-000
CAI-6478-000 x2
CAI-6306-000
CSI-5890-000 x2
N.S
CAI-6307-000
CYI-1229-000
CAI-6309-000
CAI-6327-000
(ACF-684)
CAI-6489-000
XA4-7170-309
XD3-0100-102
CG9-2683-000

REF. NO. C12-1902

BATTERY CASE

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-6303-000	D	1	CASE-1, BATTERY
	CA1-6304-000	D	1	CASE-2, BATTERY
	CA1-6306-000	D	1	HOLDER, BATTERY PACK
	CA1-6307-000	C	1	KNOB, BATTERY PACK
	CA1-6308-000	E	1	CLAW, BATTERY PACK
	CA1-6309-000	E	1	WASHER, SPRING
	CA1-6310-000	E	1	GUARD, BATTERY CASE
	CA1-6313-000	E	1	PLATE, BATTERY INDICATION
	CA1-6327-000	D	1	OPENER, BATTERY PACK
	CA1-6451-000	E	1	RETAINER, REMOTE JACK
	CA1-6478-000	E	2	SHAFT
	CA1-6489-000	E	1	SPACER, BATTERY PACK
	CA4-1847-000	D	1	CAP TERMINAL
	CG9-2683-000	C	1	BATTERY PACK ASSY
	CS1-5890-000	E	2	SPRING, COIL
	CY1-1225-000	D	1	BATTERY CONTACT ASSY
	CY1-1226-000	D	1	JACK, REMOTE
	CY1-1227-000	D	1	CONTACT-A, FOOL PROOF
	CY1-1228-000	D	1	CONTACT-B, FOOL PROOF
	CY1-1229-000	D	1	CONTACT, BATTRY
	XA4-7170-509		3	SCREW, CROSS-RECESS, PH
	XD3-0100-102		1	PIN, SPRING TUBULAR
	X91-1736-380		6	SCREW, CROSS-RECESS, PH
	X91-1737-900		2	SCREW, CROSS-RECESS, PH
	X99-0494-000		1	SCREW, CROSS-RECESS, PH
	X99-0562-000		1	SCREW, CROSS-RECESS, PH

CANON T90


(See Pg. 4)
(See Pg. 5)
CS1-5964-000
CA1-6360-000
X99-0581-000x2
CA1-6339-000
XA1-7170-257x3
CA1-6359-000
CS1-6701-000
CS1-5963-000
XA4-6200-459
CA1-6340-000
CA1-6496-000
XA4-8200-707x2
CA1-6414-000
CH2-5005-000
N.S (ACF-678,693)
X91-2024-890x2
X99-0570-000
CS1-5878-000
XG8-1100-571
CA1-6498-000
CA1-6329-080
X99-0484-000
CY1-1230-000
CA1-6330-000
XG8-1100-571
CS1-5878-000
CA1-6335-000
CA1-6338-000
CA1-6334-000
CY1-1231-000

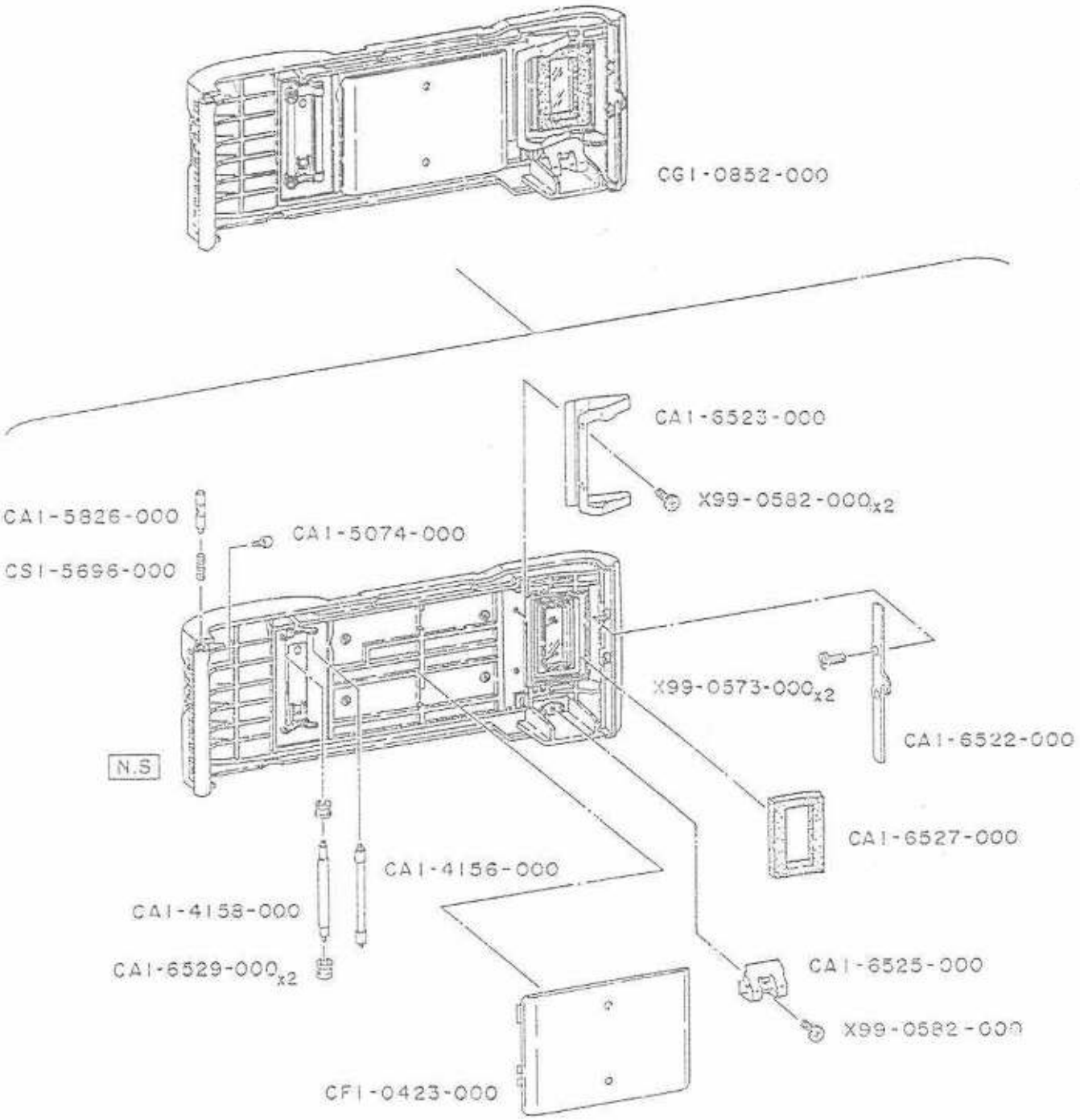
51

REF. NO. C12-1902

GRIP

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-6329-080	E	1	SWITCH PANEL
	CA1-6330-000	E	1	BUTTON, LCD OFF
	CA1-6334-000	E	1	KNOB, AS-ST CHANGE
	CA1-6335-000	E	1	BUTTON, AS-ST MODE
	CA1-6338-000	E	1	SCREW, SHAFT
	CA1-6339-000	D	1	GRIP
	CA1-6340-000	E	1	COVER, GRIP
	CA1-6359-000	D	1	GRIP, PALM
	CA1-6360-000	E	1	BAR, PALM GRIP
	CA1-6414-000	E	1	HINGE, BACK COVER
	CA1-6496-000	E	1	TAPE, GRIP
	CA1-6498-000	E	1	LUG, NECK STRAP
	CH2-5005-000	D	1	CONTACT, RUBBER
	CS1-5878-000	D	2	SPRING, COIL
	CS1-5963-000	E	1	SPRING, COIL
	CS1-5964-000	E	1	SPRING, COIL
	CS1-6701-000	E	1	SPRING
	CY1-1230-009	D	1	PLATE, F. INDICATOR CLICK
	CY1-1231-000	D	1	PLATE, AS-ST CLICK
	XA1-7170-257		3	SCREW, CROSS-RECESS, PH
	XA4-6200-459		1	SCREW, CROSS-RECESS, PH
	XA4-8200-707		2	SCREW, CROSS-RECESS, FCH
	XG8-1100-571		2	BALL, STEEL
	X91-2024-890		2	SCREW, CROSS-RECESS, PH
	X99-0494-000		1	SCREW, CROSS-RECESS, PH
	X99-0570-000		2	SCREW, CROSS-RECESS, PH
	X99-0581-000		2	SCREW, CROSS-RECESS, PH

CANON T90

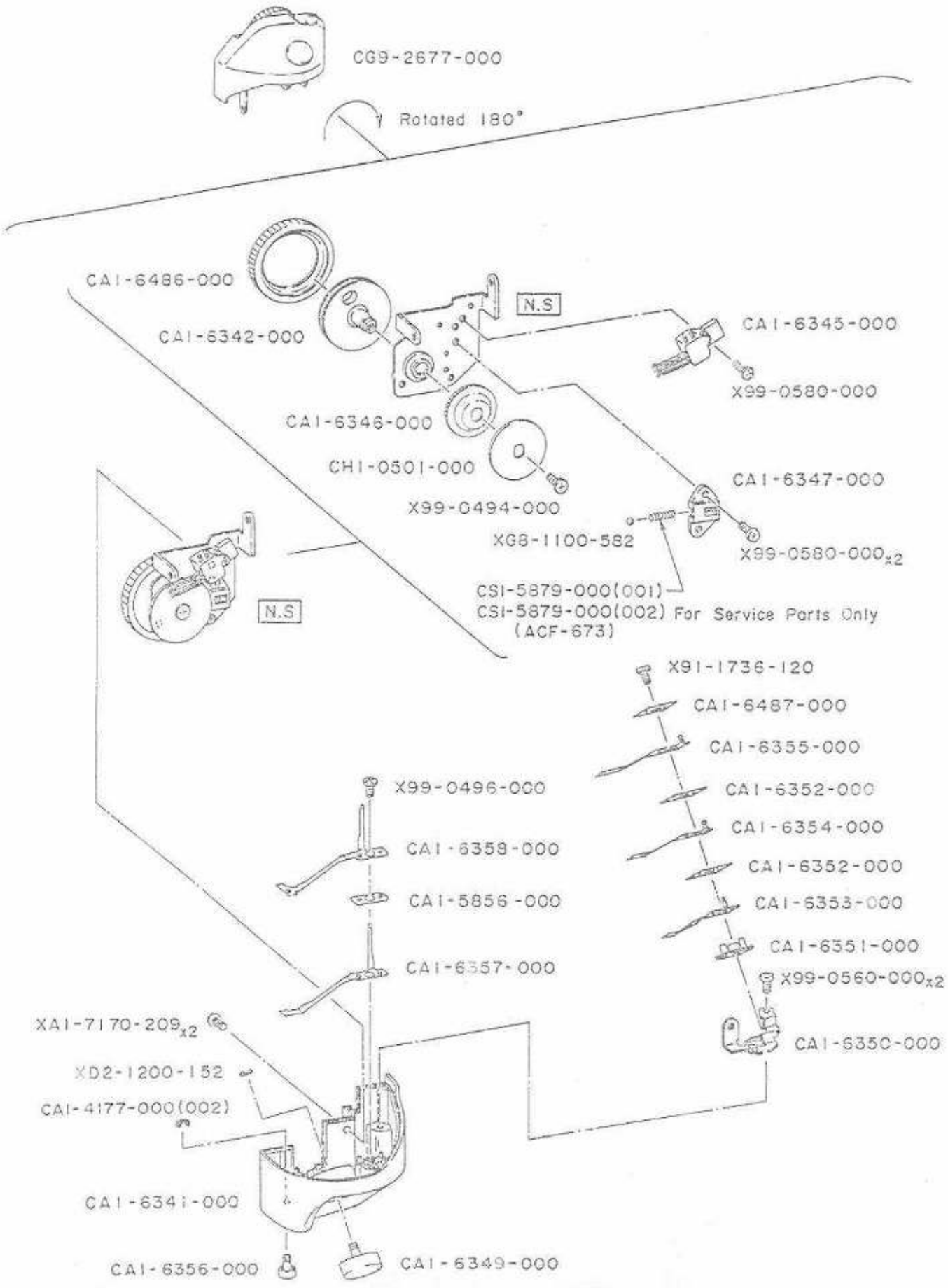

CG1-0852-000
CA1-6523-000
X99-0582-000 x2
CA1-5826-000
CS1-5696-000
CA1-5074-000
X99-0573-000 x2
CA1-6522-000
N.S
CA1-6527-000
CA1-4156-000
CA1-4158-000
CA1-6529-000 x2
CA1-6525-000
X99-0582-000
CF1-0423-000

REF. NO. C12-1902

BACK COVER

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-4156-000	D	1	GUIDE, FILM
	CA1-4158-000	D	1	ROLLER
	CA1-5074-000	E	1	SCREW, STOPPER
	CA1-5826-000	D	1	SHAFT, HINGE
	CA1-6522-000	E	1	CLAW, BACK COVER
	CA1-6523-000	E	1	HOLDER, FILM MAGAZINE
	CA1-6525-000	E	1	PLATE, SPRING
	CA1-6527-000	D	1	SHIELD, LIGHT
	CA1-6529-000	E	2	HOLDER, FILM ROLLER
	CF1-0423-000	D	1	PLATE, PRESSURE
	CG1-0852-000	D	1	BACK COVER UNIT
	CS1-5696-000	D	1	SPRING, COIL
	X99-0573-000		2	SCREW, CROSS-RECESS, PH
	X99-0582-000		3	SCREW, CROSS-RECESS, PH

CANON T90


CG9-2677-000
Rotated 180°
CA1-6486-000
CA1-6342-000
N.S
CA1-6345-000
X99-0580-000
CA1-6346-000
CH1-0501-000
X99-0494-000
CA1-6347-000
XG8-1100-582
X99-0580-000x2
CS1-5879-000(001)
CS1-5879-000(002) For Service Parts Only
(ACF-673)
N.S
X91-1736-120
CA1-6487-000
CA1-6355-000
X99-0496-000
CA1-6352-000
CA1-6354-000
CA1-6359-000
CA1-6352-000
CA1-5856-000
CA1-6353-000
CA1-6357-000
CA1-6351-000
X99-0560-000x2
XA1-7170-209x2
CA1-6350-000
XD2-1200-152
CA1-4177-000(002)
CA1-6341-000
CA1-6356-000
CA1-6349-000

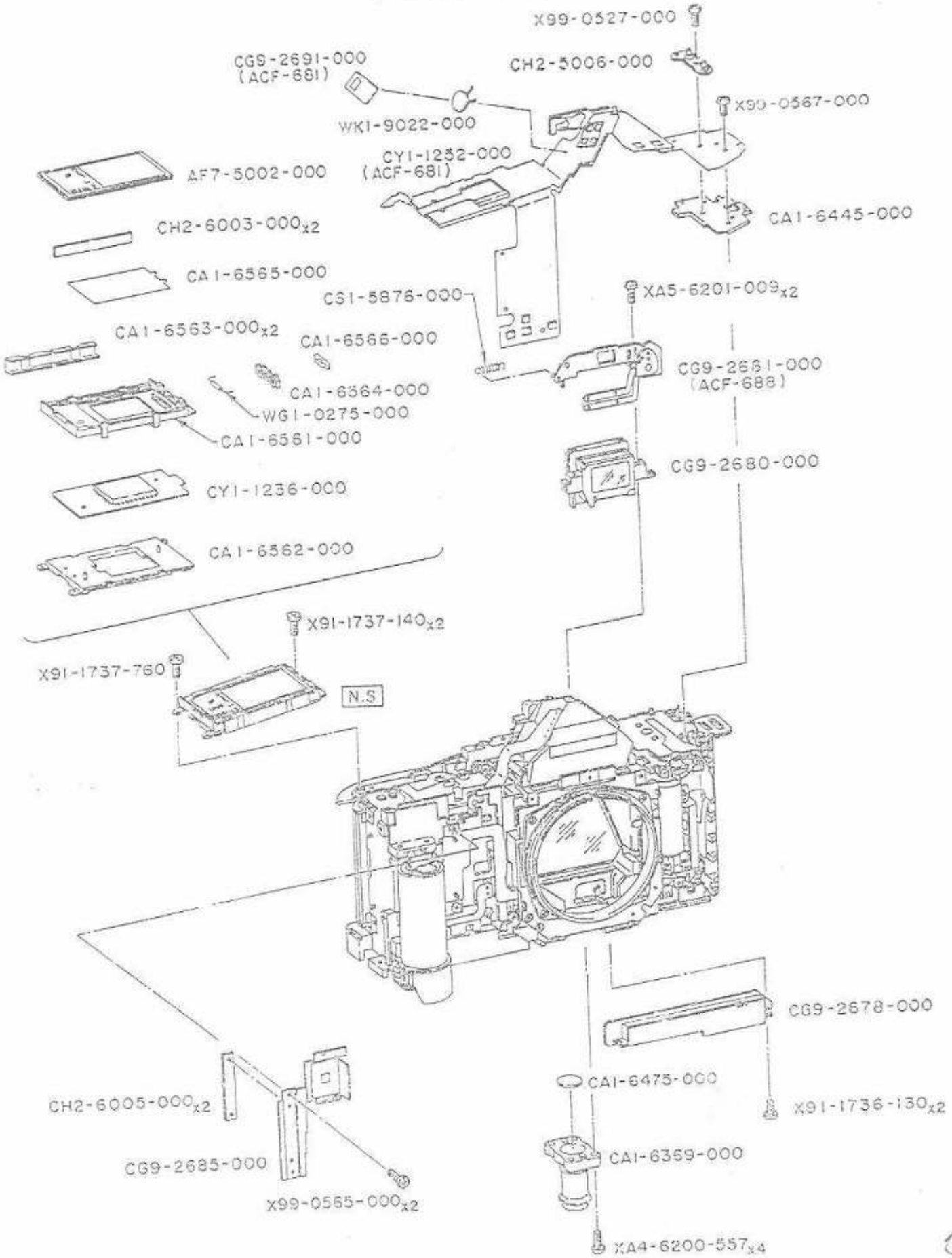
REF. NO. C12-1902

ELECTRONIC INPUT DIAL

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-4177-000(002)	D	1	C RING
	CA1-5856-000	C	1	INSULATOR
	CA1-6341-000	D	1	HEAD, DIAL
	CA1-6342-000	E	1	DIAL, MODE CHANGE
	CA1-6345-000	D	1	CONTACT, DIAL
	CA1-6346-000	E	1	PLATE, CLICK
	CA1-6347-000	E	1	HOLDER, CLICK
	CA1-6349-000	C	1	BUTTON, RELEASE
	CA1-6350-000	E	1	BASEPLATE, RELEASE SW
	CA1-6351-000	E	1	BASE, RELEASE CONTACT
	CA1-6352-000	E	2	INSULATOR
	CA1-6353-000	E	1	CONTACT, RELEASE GND
	CA1-6354-000	E	1	CONTACT, SW-1
	CA1-6355-000	E	1	CONTACT, SW-2
	CA1-6356-000	C	1	BUTTON, SPOT
	CA1-6357-000	E	1	CONTACT, SPOT GND
	CA1-6358-000	E	1	CONTACT, SPOT
	CA1-6486-000	D	1	RING, DIAL
	CA1-6487-000	E	1	INSULATOR
	CG9-2677-000	D	1	RELEASE BUTTON/DIAL ASSY
	CH1-0501-000	E	1	BOARD, CONTACT
	CS1-5879-000(001)	D	1	SPRING, COIL
	CS1-5879-000(002)	D	1	SPRING, COIL
	XA1-7170-209		2	SCREW, CROSS-RECESS, PH
	XD2-1200-152		1	E RING
	XG8-1100-582		1	BALL, STEEL
	X91-1736-120		1	SCREW, CROSS-RECESS, PH
	X99-0494-000		1	SCREW, CROSS-RECESS, PH
	X99-0496-000		1	SCREW, CROSS-RECESS, PH
	X99-0560-000		2	SCREW, CROSS-RECESS, PH
	X99-0580-000		3	SCREW, CROSS-RECESS, PH

REF NO. C12-1902

CANON T90

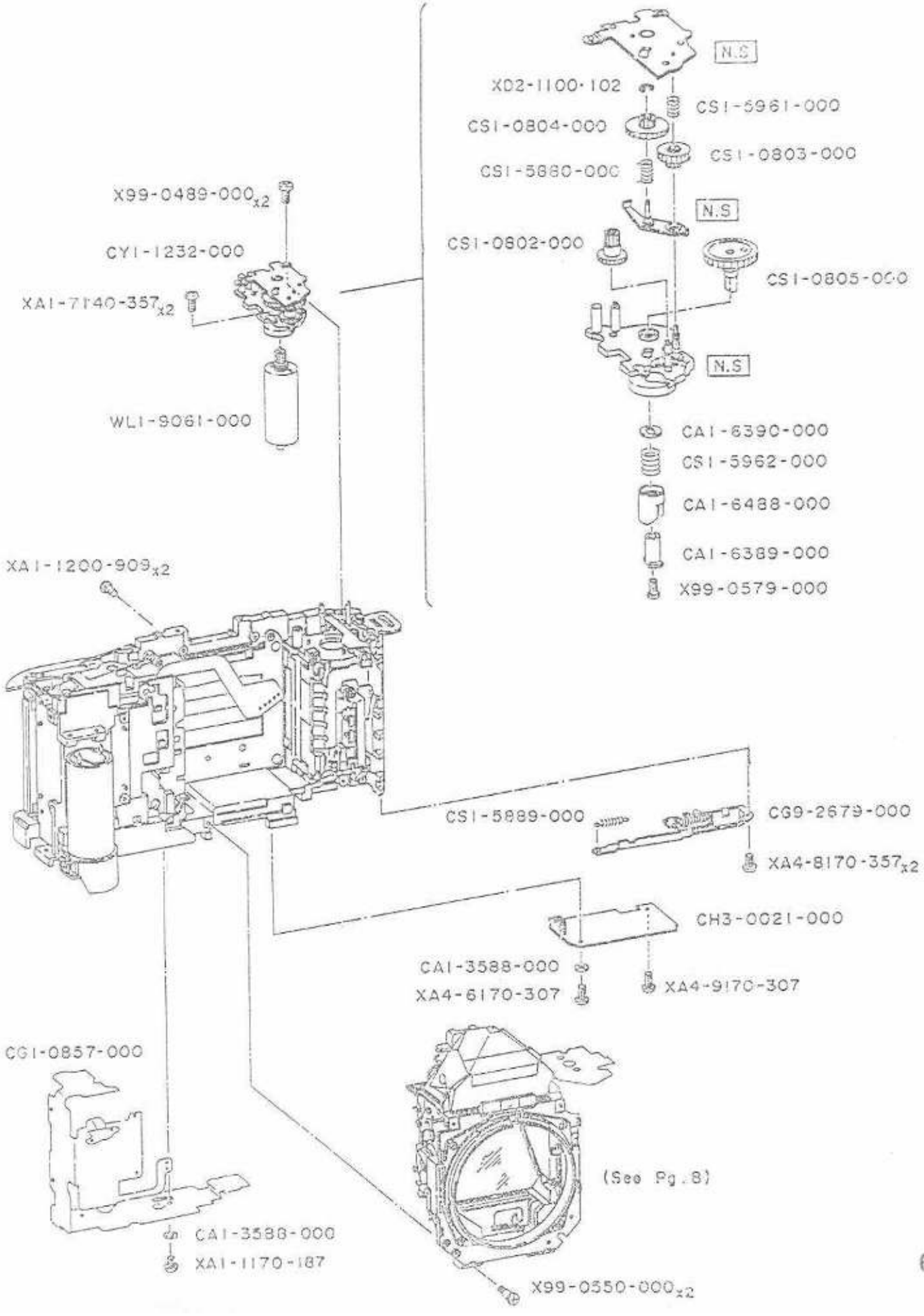


REF. NO. C12-1902

MAIN FLEX, LCD

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	AF7-5002-000	E	1	LCD, EXTERNAL
	CA1-6369-000	E	1	SOCKET, TRIPOD
	CA1-6445-000	E	1	BASE, MODE SW
	CA1-6475-000	E	1	CAP, TRIPOD
	CA1-6561-000	E	1	CASE, OLC
	CA1-6562-000	E	1	BASEPLATE, OLC
	CA1-6563-000	E	2	HOLDER, OLC
	CA1-6564-000	E	1	CASE, OLC LAMP
	CA1-6565-000	E	1	REFLECTOR, OLC LIGHT
	CA1-6566-000	E	1	FRAME, OLC LIGHT
	CG9-2678-000	D	1	MAIN SWITCH ASSY
	CG9-2680-000	D	1	EYEPIECE
	CG9-2681-000	E	1	EYEPIECE SHUTTER ASSY
	CG9-2685-000	E	1	SELF-TIMER LED ASSY
	CG9-2691-000	E	1	RESET FLEX ASSY
	CH2-5006-000	D	1	SWITCH, MODE
	CH2-6003-000	E	2	CONNECTOR, OLC
	CH2-6005-000	D	2	CONNECTOR
	CS1-5676-000	E	1	SPRING, COIL
	CY1-1236-000	D	1	OLC PCB ASSY
	CY1-1252-000	D	1	MAIN FLEX ASSY
	WG1-0275-000	D	1	LAMP, SMALL AXL-32
	WK1-9002-000	E	1	LI. BAT.
	XA4-6200-557		4	SCREW, CROSS-RECESS, PH
	XA5-6201-009		2	SCREW, CROSS-RECESS, PH
	X91-1736-130		2	SCREW, CROSS-RECESS, PH
	X91-1737-140		2	SCREW, CROSS-RECESS, PH
	X91-1737-760		1	SCREW, CROSS-RECESS, PH
	X99-0527-000		1	SCREW, CROSS-RECESS, PH
	X99-0565-000		2	SCREW, CROSS-RECESS, PH
	X99-0567-000		1	SCREW, CROSS-RECESS, PH

CANON T90

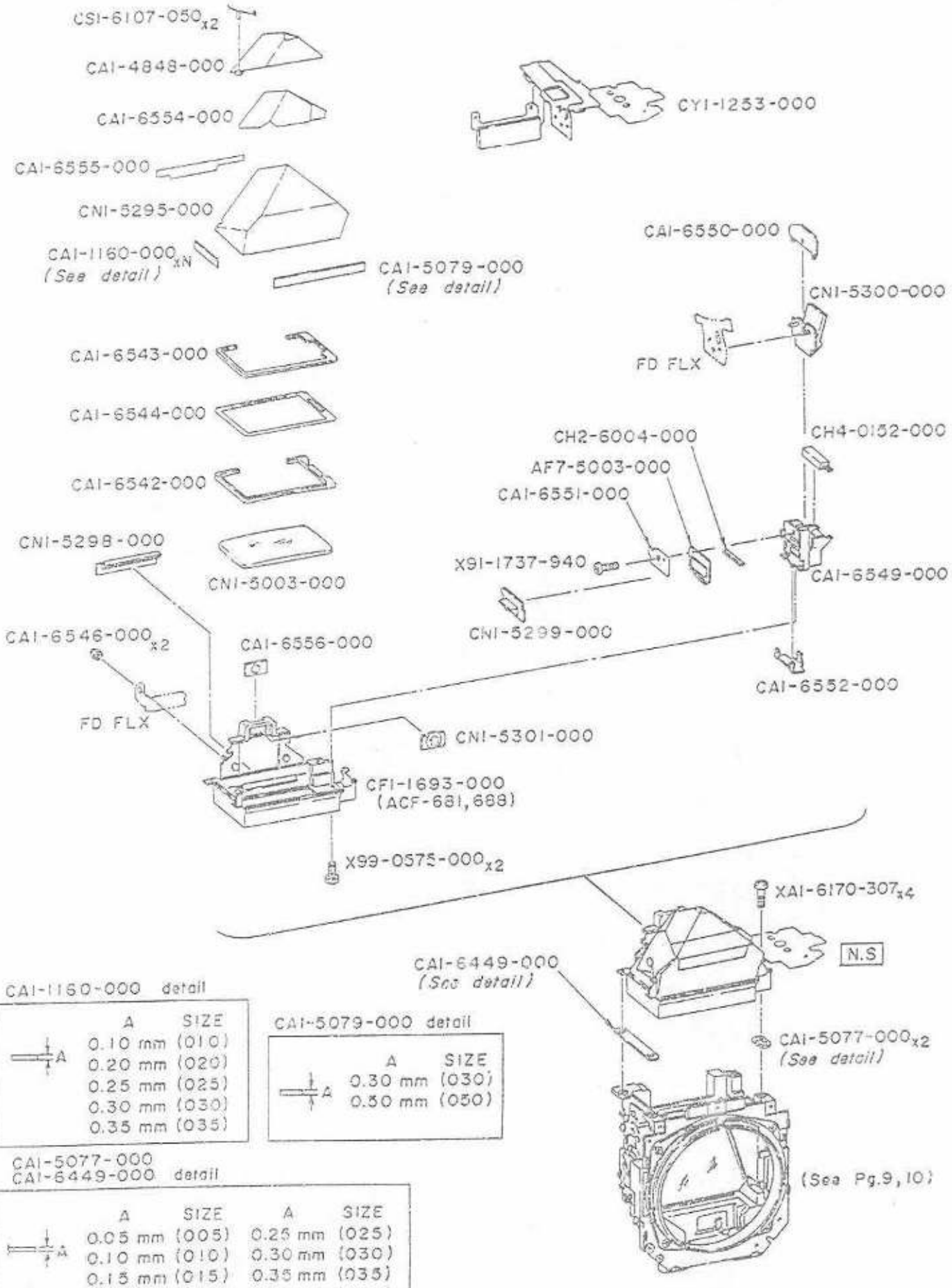

N.S
XD2-1100-102
CS1-5961-000
CS1-0804-000
CS1-0803-000
CS1-5880-000
N.S
CS1-0802-000
CS1-0805-000
X99-0489-000x2
CY1-1232-000
XA1-7140-357x2
N.S
WL1-9061-000
CA1-6390-000
CS1-5962-000
CA1-6488-000
CA1-6389-000
X99-0579-000
XA1-1200-909x2
CS1-5889-000
CG9-2679-000
XA4-8170-357x2
CH3-0021-000
CA1-3588-000
XA4-6170-307
XA4-9170-307
CG1-0857-000
(See Pg. 8)
CA1-3588-000
XA1-1170-187
X99-0550-000x2

REF. NO. C12-1902

REWIND PARTS

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-3588-000	D	2	WASHER
	CA1-6369-000	E	1	SHAFT, REWIND FORK
	CA1-6390-000	E	1	SPACER
	CA1-6408-000	D	1	FORK, REWIND
	CG1-0857-000	D	1	MOTOR FLEX ASSY
	CG9-2679-000	E	1	STOP-DOWN MECH. ASSY
	CH3-0021-000	D	1	CONVERTER, DC/DC
	CS1-0802-000	E	1	GEAR, RW
	CS1-0803-000	E	1	GEAR, RW-S
	CS1-0804-000	E	1	GEAR, RW-P
	CS1-0805-000	D	1	GEAR, FORK
	CS1-5880-000	E	1	SPRING, COIL
	CS1-5889-000	E	1	SPRING, COIL
	CS1-5961-000	E	1	SPRING, COIL
	CS1-5962-000	E	1	SPRING, COIL
	CY1-1232-000	E	1	REWIND MECH. ASSY
	WL1-9061-000	D	1	MOTOR, REWINDING
	XA1-1170-187		1	SCREW, CROSS-RECESS, PH
	XA1-1200-909		2	SCREW, CROSS-RECESS, PH
	XA1-7140-357		2	SCREW, CROSS-RECESS, PH
	XA4-9170-307		1	SCREW, CROSS-RECESS, PH
	XA4-9170-357		2	SCREW, CROSS-RECESS, FCH
	XA4-9170-307		1	SCREW, CROSS-RECESS, PH
	XD2-1100-102		1	E RING
	X99-0489-000		2	SCREW, CROSS-RECESS, PH
	X99-0550-000		2	SCREW, SLOTTED, OFH
	X99-0579-000		1	SCREW, CROSS-RECESS, PH

CANON T90



CAI-1160-000 detail

A	SIZE
0.10 mm	(010)
0.20 mm	(020)
0.25 mm	(025)
0.30 mm	(030)
0.35 mm	(035)

CAI-5079-000 detail

A	SIZE
0.30 mm	(030)
0.50 mm	(050)

CAI-5077-000
CAI-6449-000 detail

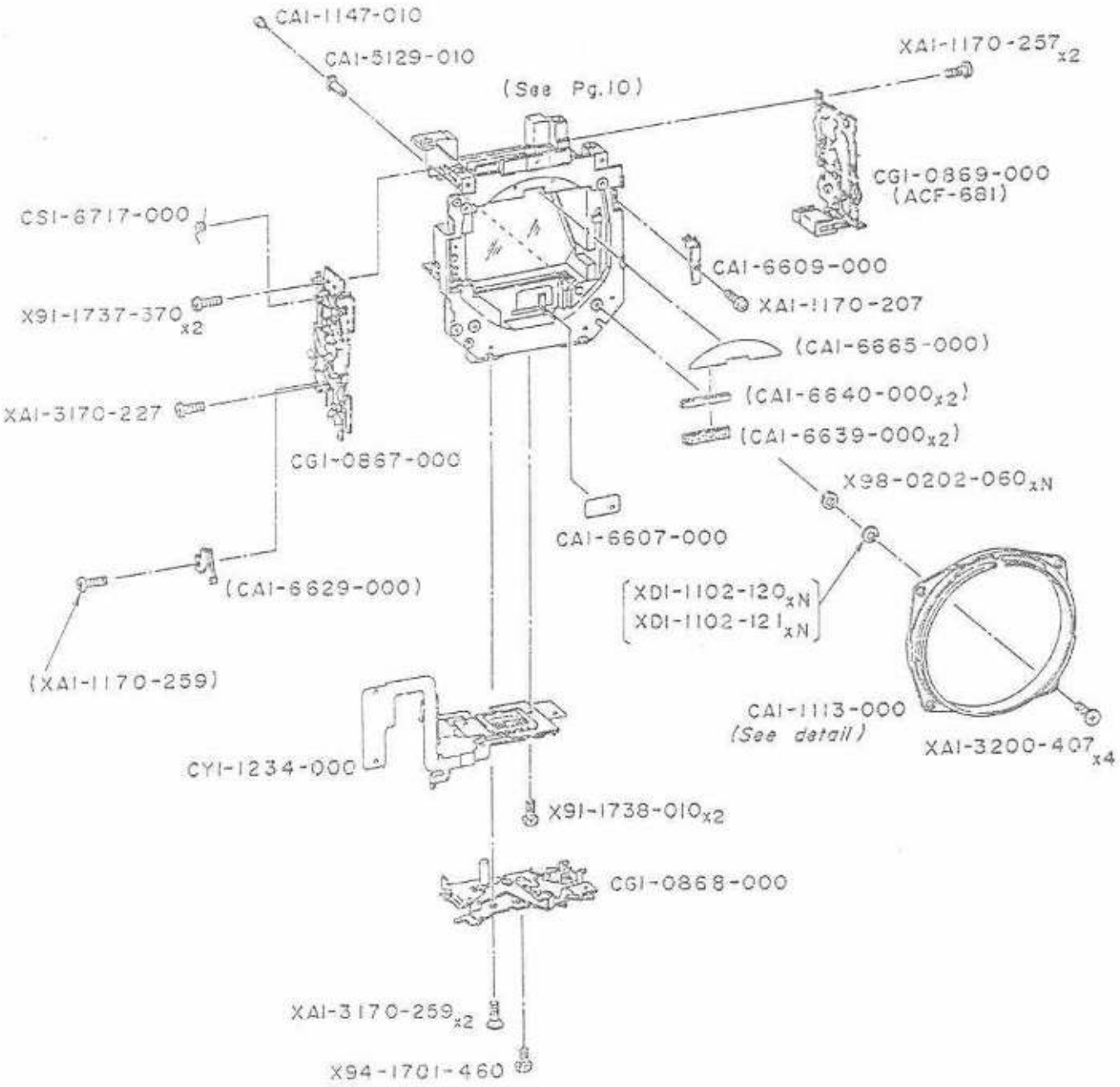
A	SIZE	A	SIZE
0.05 mm	(005)	0.25 mm	(025)
0.10 mm	(010)	0.30 mm	(030)
0.15 mm	(015)	0.35 mm	(035)
0.20 mm	(020)	0.40 mm	(040)

REF. NO. C12-1902

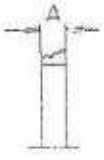
PENTAPRISM UNIT

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	AF7-5003-000	E	1	LCD, INTERNAL
	CA1-1160-000(XXX)	E	1	SPACER
	CA1-4848-000	E	1	HOLDER, PENTAPRISM
	CA1-5077-000(XXX)	E	2	WASHER
	CA1-5079-000(XXX)	D	1	SPACER
	CA1-6449-000(XXX)	E	1	WASHER, ADJUSTING
	CA1-6542-000	E	1	HOLDER, CONDENSER LENS
	CA1-6543-000	E	1	SPACER, PENTAPRISM
	CA1-6544-000	E	1	MASK, FINDER
	CA1-6546-000	E	2	NUT
	CA1-6549-000	E	1	BASE, ILC
	CA1-6550-000	E	1	HOLDER, LIGHT GUIDE
	CA1-6551-000	E	1	HOLDER, ILC
	CA1-6552-000	E	1	HOLDER, F. INFORMATION PRISM
	CA1-6554-000	E	1	COVER, PENTAPRISM
	CA1-6555-000	E	1	SHIELD, LIGHT
	CA1-6556-000	E	1	PANEL, DIFFUSION
	CF1-1693-000	E	1	BOX, PENTAPRISM
	CH2-6004-000	D	1	CONNECTOR
	CH4-0152-000	D	1	LED LS007C
	CN1-5003-000	D	1	LENS, CONDENSER
	CN1-5295-000	D	1	PENTAPRISM
	CN1-5298-000	D	1	PRISM, LED INFORMATION
	CN1-5299-000	D	1	PRISM, ILC INFORMATION
	CN1-5300-000	E	1	PRISM, LIGHT GUIDE
	CN1-5301-000	E	1	LENS, PARTIAL METERING
	CS1-6107-050	E	2	SPRING
	CY1-1253-000	D	1	FINDER FLEX ASSY
	XA1-6170-307		4	SCREW, CROSS-RECESS, PH
	X91-1737-940		1	SCREW, CROSS-RECESS, PH
	X99-0575-000		2	SCREW, CROSS-RECESS, PH

CANON T90



CAI-1113-000 detail



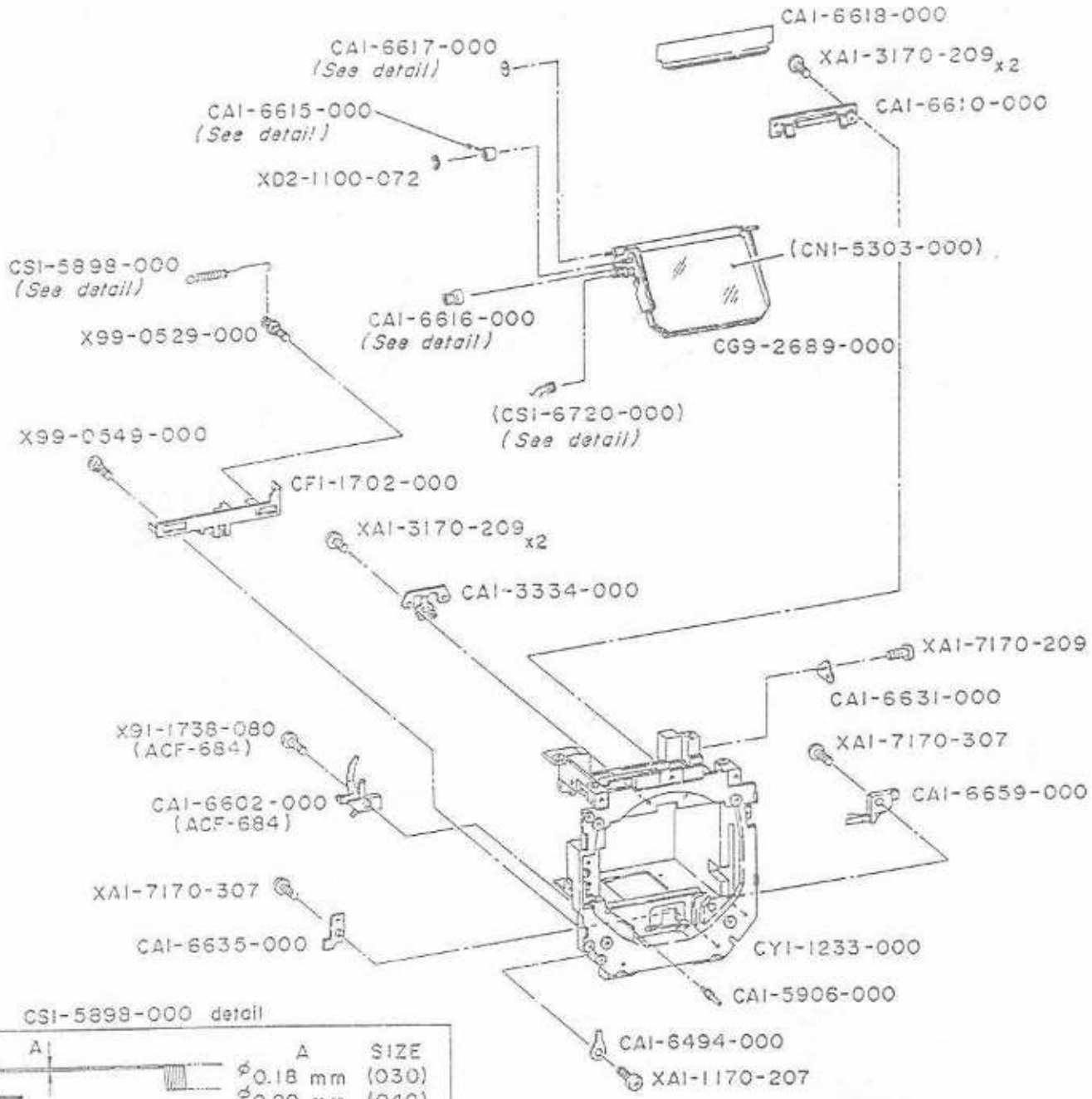
A SIZE
5.3mm (000): Standard
5.1mm (001): Special service part (0.2mm under standard)

REF. NO. C12-1902

MIRROR BOX I

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-1113-000(XXX)	D	1	BODY MOUNT
	CA1-1147-010	D	1	SCREW, MAX. APERTURE CORRECTION
	CA1-5129-010	D	1	PIN, MAX. APERTURE CORRECTION
	CA1-6607-000	C	1	PLATE, INDICATOR
	CA1-6609-000	E	1	GUARD, AE BRUSH
	CA1-6629-000	D	1	CONTACT, MIRROR UP-DOWN
	CA1-6639-000	D	2	CUSHION
	CA1-6640-000	E	2	CUSHION
	CA1-6665-000	D	1	SHIELD, LIGHT
	CG1-0867-000	D	1	MIRROR MECHANISM UNIT
	CG1-0868-000	D	1	AUTO DIAPHRAGM UNIT
	CG1-0869-000	D	1	AE UNIT
	CS1-6717-000	E	1	SPRING
	CY1-1234-000	E	1	DTTL/SPOT FLEX ASSY
	XA1-1170-287		1	SCREW, CROSS-RECESS, PH
	XA1-1170-287		2	SCREW, CROSS-RECESS, PH
	XA1-1170-259		1	SCREW, CROSS-RECESS, PH
	XA1-3170-227		1	SCREW, CROSS-RECESS, FCH
	XA1-3170-259		2	SCREW, CROSS-RECESS, FCH
	XA1-3200-407		4	SCREW, CROSS-RECESS, FCH
	XD1-1102-120		1	WASHER
	XD1-1102-121		1	WASHER
	X91-1737-370		2	SCREW, CROSS-RECESS, PH
	X91-1738-010		2	SCREW, CROSS-RECESS, PH
	X94-1701-460		1	SCRE, SLOTTED, FCH
	X98-0202-060		1	WASHER

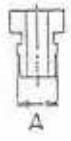
CANON T90



CSI-5898-000 detail

A	SIZE
φ0.18 mm	(030)
φ0.20 mm	(040)

CAI-6616-000 detail



A	SIZE
Φ2.0 mm	(020)
Φ2.1 mm	(021)
Φ2.2 mm	(022)

CAI-6615-000 detail

A	SIZE
Φ1.8 mm	(018)
Φ1.9 mm	(019)
Φ2.0 mm	(020)

CAI-6617-000 detail

A	SIZE
0.1 mm	(010)
0.2 mm	(020)
0.3 mm	(030)

CSI-6720-000 detail

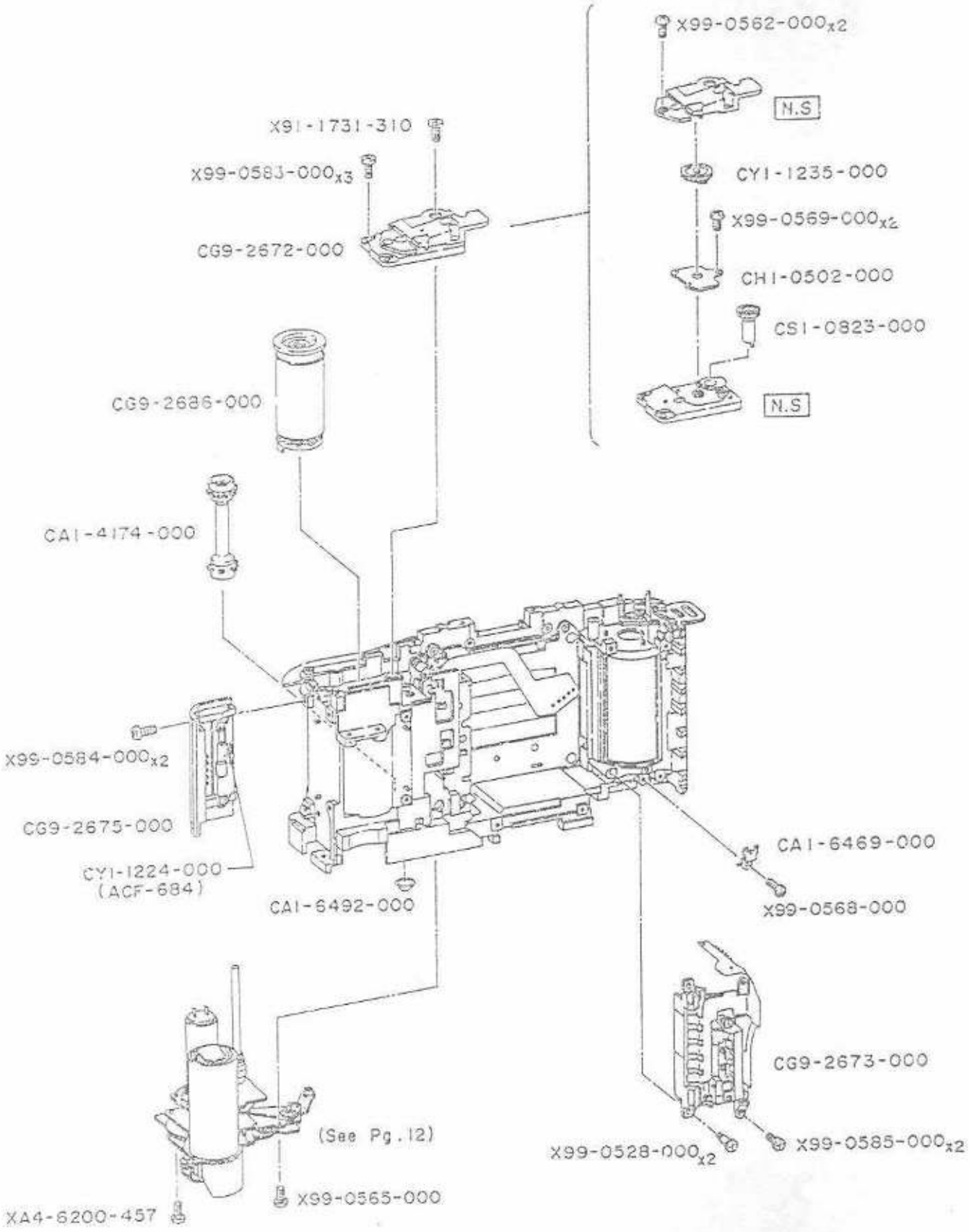
A	SIZE
47°	(020)
57°	(030)
67°	(040)

REF. NO. C12-1902

MIRROR BOX II

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-3334-000	C	1	CATCH, FOCUSING SCREEN
	CA1-5806-000	E	1	PIN, A.M.
	CA1-6494-000	E	1	LUG
	CA1-6602-000	E	1	CONTACT, A-M CHANGE
	CA1-6610-000	E	1	BRACKET, FOCUSING SCREEN
	CA1-6615-000(XXX)	E	1	COLLAR
	CA1-6616-000(XXX)	E	1	COLLAR, ADJUSTING
	CA1-6617-000(XXX)	E	1	WASHER
	CA1-6618-000	E	1	SHIELD, LIGHT
	CA1-6631-000	E	1	PLATE, MIRROR POSITIONING
	CA1-6635-000	E	1	GUIDE, SW POSITIONING
	CA1-6659-000	E	1	CONTACT, STOP-DOWN METERING
	CF1-1702-000	E	1	LEVER, STOP-DOWN METERING
	CG9-2689-000	D	1	MIRROR ASSY
	CN1-5303-000	D	1	MIRROR
	CS1-5898-000(XXX)	E	1	SPRING
	CS1-6720-000(XXX)	E	1	SPRING
	CY1-1233-000	E	1	PANEL, FRONT
	XA1-1170-207		1	SCREW, CROSS-RECESS, PH
	XA1-3170-209		4	SCREW, CROSS-RECESS, FCH
	XA1-7170-209		1	SCREW, CROSS-RECESS, PH
	XA1-7170-307		3	SCREW, CROSS-RECESS, PH
	XD2-1100-072		1	E RING
	X91-1738-080		1	SCREW, CROSS-RECESS, PH
	X99-0529-000		1	SCREW, SLOTTED, SHOULDER
	X99-0549-000		1	SCREW, SLOTTED, SHOULDER

CANON T90

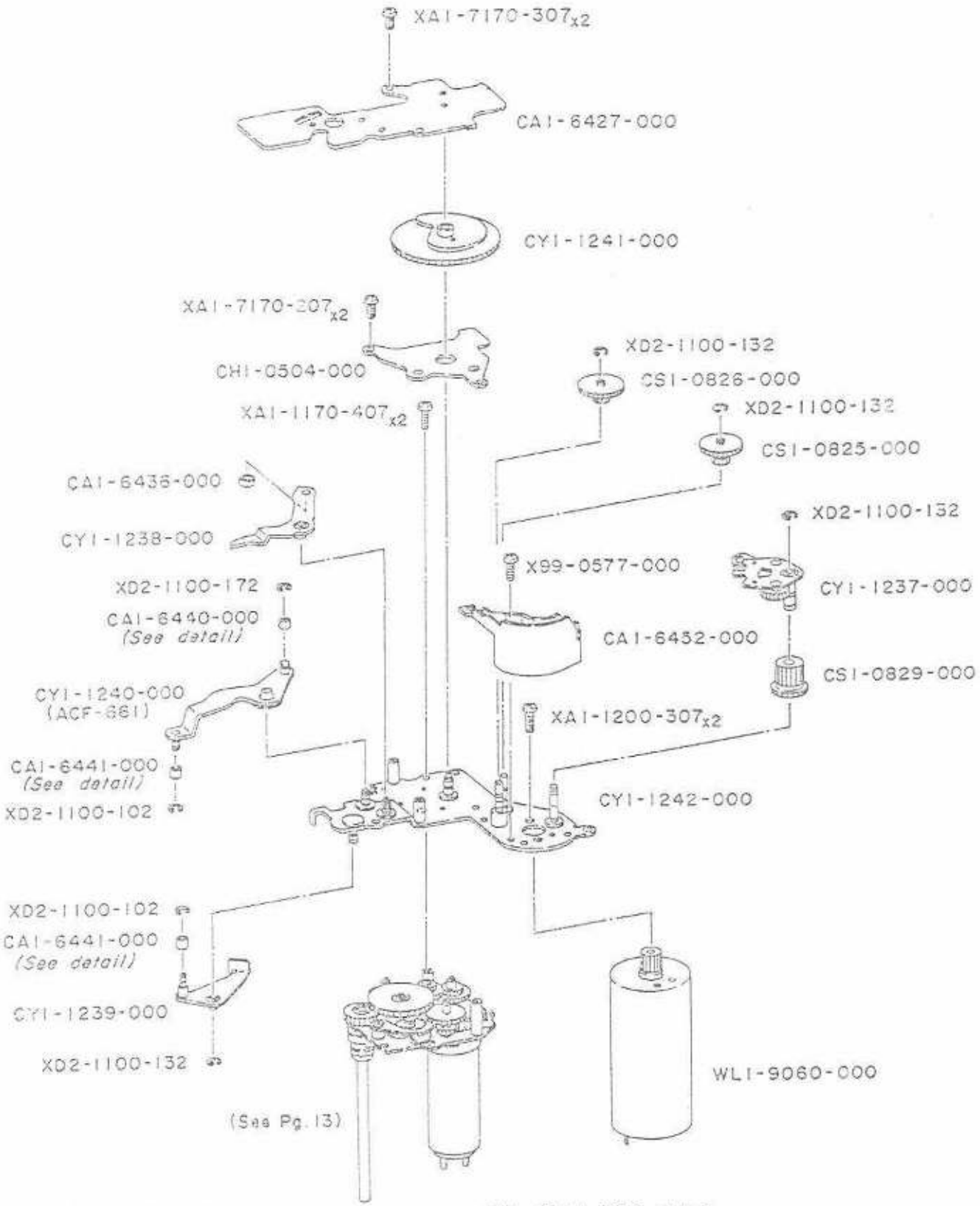

X99-0562-000x2
N.S
X91-1731-310
X99-0583-000x3
CY1-1235-000
X99-0569-000x2
CG9-2672-000
CH1-0502-000
CS1-0823-000
CG9-2686-000
N.S
CA1-4174-000
X99-0584-000x2
CG9-2675-000
CY1-1224-000
(ACF-684)
CA1-6492-000
CA1-6469-000
X99-0568-000
CG9-2673-000
(See Pg. 12)
X99-0528-000x2
X99-0585-000x2
X99-0565-000
XA4-6200-457

REF. NO. C12-1902

SPOOL, SPROCKET

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-4174-000	E	1	SPROCKET
	CA1-6469-000	E	1	CONTACT, FILM MAGAZINE
	CA1-6492-000	D	1	WASHER
	CG9-2672-000	D	1	MOTOR SIGNAL BASE ASSY
	CG9-2673-000	D	1	DX SENSOR ASSY
	CG9-2675-000	D	1	ROLLER HOLDER ASSY
	CG9-2686-000	E	1	SPOOL ASSY
	CH1-9502-000	E	1	BOARD, CONTACT
	CS1-0823-000	E	1	GEAR, SPROCKET
	CY1-1224-000	E	1	SPRING, AL COVER (2)
	CY1-1235-000	E	1	GEAR, MOTOR SIGNAL
	XA4-6200-457		1	SCREW, CROSS-RECESS, PH
	X91-1731-310		1	SCREW, CROSS-RECESS, PH
	X99-0528-000		2	SCREW, CROSS-RECESS, SHOULDER
	X99-0562-000		2	SCREW, CROSS-RECESS, PH
	X99-0565-000		1	SCREW, CROSS-RECESS, PH
	X99-0568-000		1	SCREW, CROSS-RECESS, PH
	X99-0569-000		2	SCREW, CROSS-RECESS, PH
	X99-0583-000		3	SCREW, CROSS-RECESS, PH
	X99-0584-000		2	SCREW, CROSS-RECESS, PH
	X99-0585-000		2	SCREW, CROSS-RECESS, PH

CANON T90



CA1-6440-000 detail

A	SIZE	A	SIZE
ø2.6 mm	(026)	ø3.2 mm	(032)
ø2.8 mm	(028)	ø3.4 mm	(034)
ø3.0 mm	(030)	ø3.6 mm	(036)

CA1-6441-000 detail

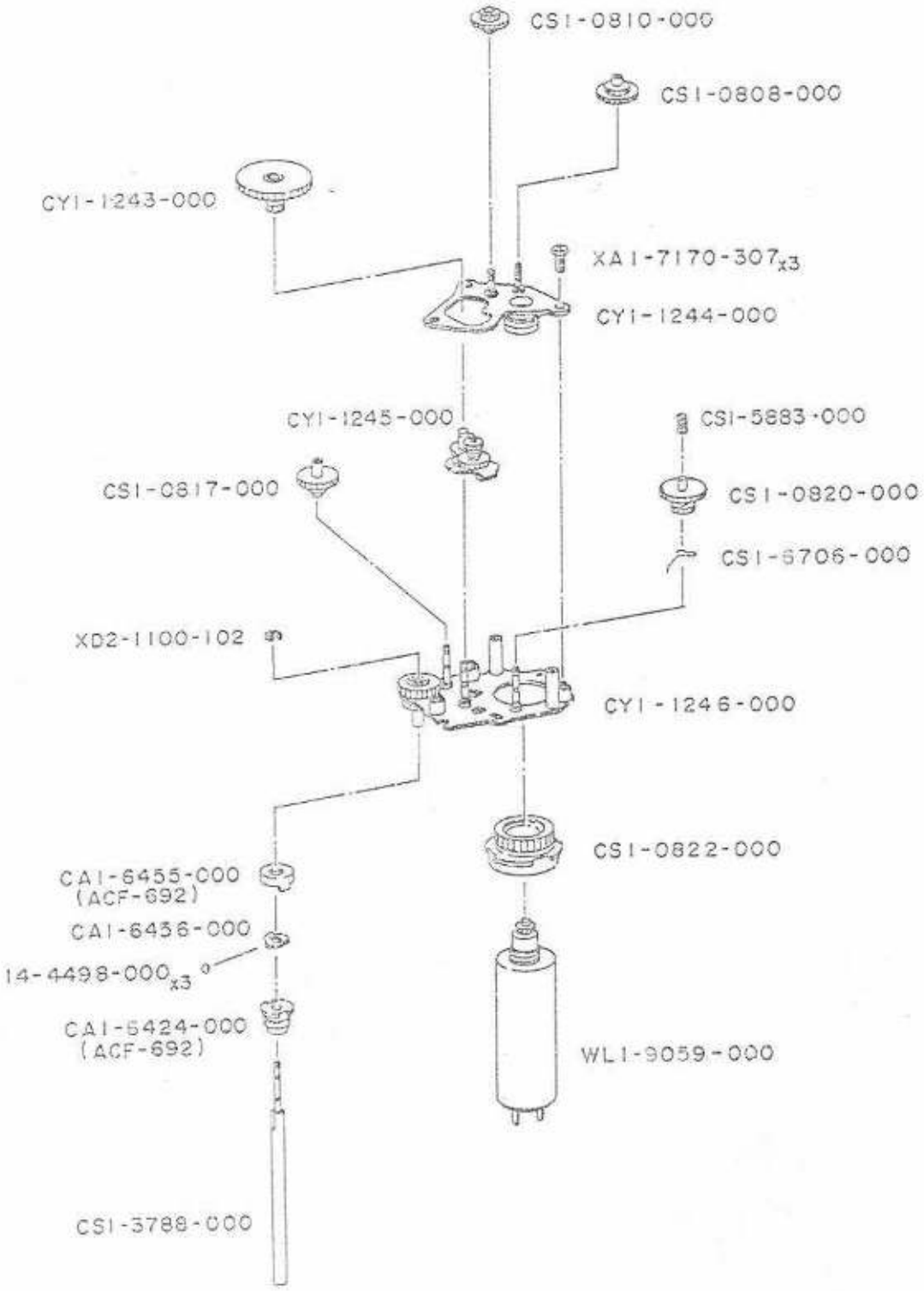
A	SIZE	A	SIZE
ø2.2 mm	(022)	ø3.0 mm	(030)
ø2.4 mm	(024)	ø3.2 mm	(032)
ø2.6 mm	(026)	ø3.4 mm	(034)
ø2.8 mm	(028)		

REF. NO. C12-1902

DRIVE UNIT I

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-6427-000	E	1	PLATE
	CA1-6436-000	E	1	BEARING, BALL
	CA1-6440-000(XXX)	D	1	COLLAR, ADJUSTING
	CA1-6441-000(XXX)	D	2	COLLAR, ADJUSTING
	CA1-6452-000	E	1	GUIDE, WIRE
	CH1-0504-000	E	1	BOARD, CONTACT
	CS1-0825-000	E	1	GEAR, CHARGE-1
	CS1-0826-000	E	1	GEAR, CHARGE-2
	CS1-0829-000	E	1	GEAR, SUN
	CY1-1237-000	E	1	PLANETARY GEAR ASSY
	CY1-1238-000	E	1	LEVER, SHUTTER CHARGE-1
	CY1-1239-000	E	1	LEVER, SHUTTER CHARGE-2
	CY1-1240-000	E	1	LEVER, FRONT PANEL CHARGE
	CY1-1241-000	E	1	GEAR, CHARGE CAM
	CY1-1242-000	E	1	BASEPLATE, CHARGE MECH.
	WL1-9060-000	D	1	MOTOR, CHARGE
	XA1-1170-407		2	SCREW, CROSS-RECESS, PH
	XA1-1200-307		2	SCREW, CROSS-RECESS, PH
	XA1-7170-207		2	SCREW, CROSS-RECESS, PH
	XA1-7170-307		2	SCREW, CROSS-RECESS, PH
	XD2-1100-102		2	E RING
	XD2-1100-132		4	E RING
	XD2-1100-172		1	E RING
	X99-0577-000		1	SCREW, CROSS-RECESS, PH

CANON T90

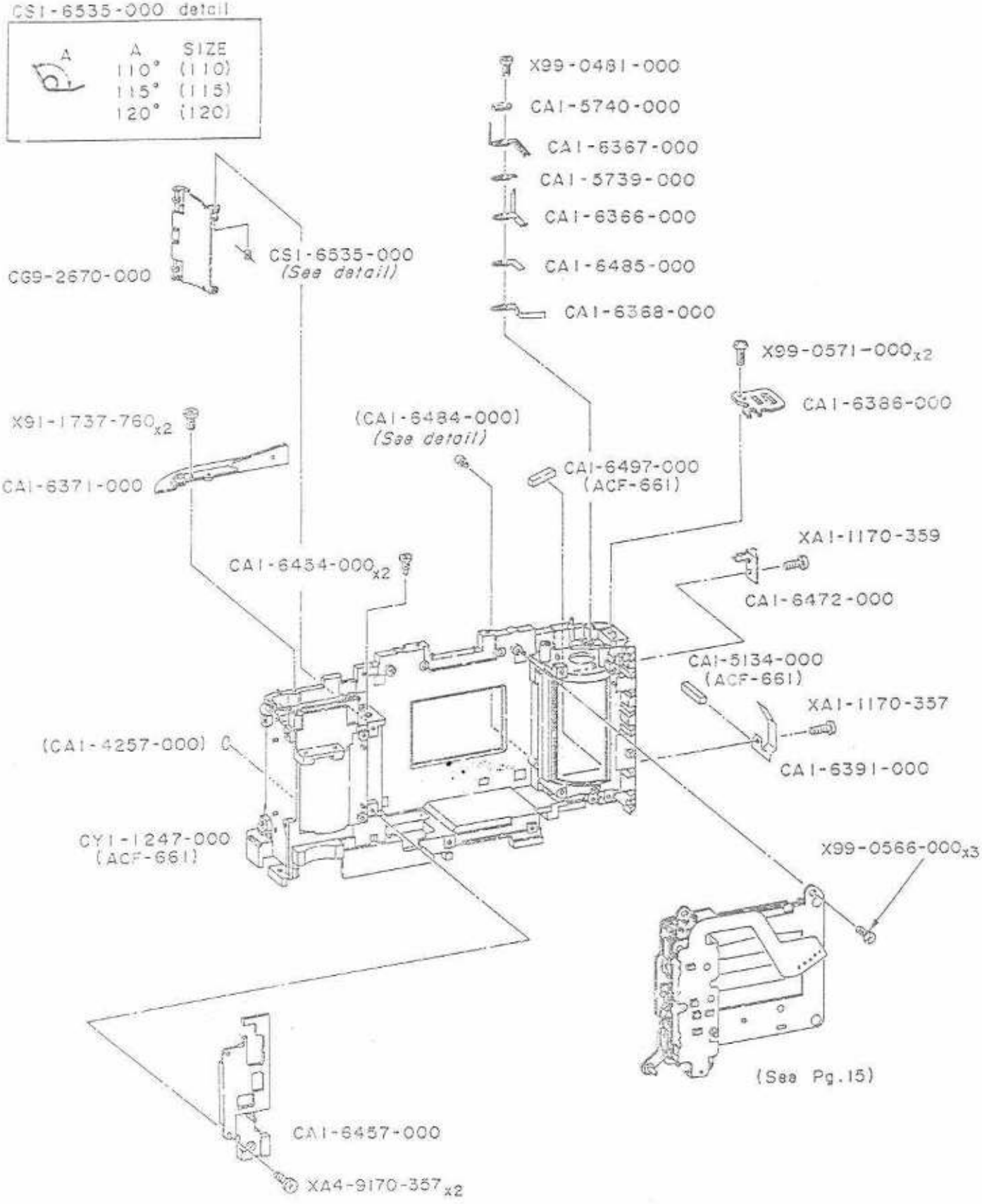

CS1-0810-000
CS1-0808-000
CY1-1243-000
XA1-7170-307x3
CY1-1244-000
CY1-1245-000
CS1-5883-000
CS1-0817-000
CS1-0820-000
CS1-6706-000
XD2-1100-102
CY1-1246-000
CS1-0822-000
CA1-6455-000
(ACF-692)
CA1-6456-000
14-4498-000x3
CA1-5424-000
(ACF-692)
WL1-9059-000
CS1-3788-000

REF. NO. C12-1902

DRIVE UNIT II

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	14-4488-000	C	3	BALL, STEEL
	CA1-6424-000	E	1	CLUTCH, ONE WAY
	CA1-6455-000	E	1	CAP, ONE WAY CLUTCH
	CA1-6456-000	E	1	CAM, ONE WAY
	CS1-0808-000	E	1	GEAR, WINDING-2
	CS1-0810-000	E	1	GEAR, WINDING-3
	CS1-0817-000	E	1	GEAR, WINDING-7
	CS1-0820-000	E	1	GEAR, WINDING-9
	CS1-0822-000	E	1	GEAR, WINDING-10
	CS1-3788-000	E	1	SHAFT, SPROCKET
	CS1-6883-000	E	1	SPRING, COIL
	CS1-6706-000	E	1	SPRING
	CY1-1243-000	E	1	GEAR, WINDING-4
	CY1-1244-000	E	1	BASEPLATE, INTERMEDIATE
	CY1-1245-000	E	1	PLANETARY GEAR ASSY
	CY1-1246-000	E	1	BASEPLATE, WINDING MECH.
	WL1-9059-000	D	1	MOTOR, WINDING
	XA1-7170-307		3	SCREW, CROSS-RECESS, PH
	XD2-1100-102		1	E RING

CANON T90



CA1-6484-000 detail

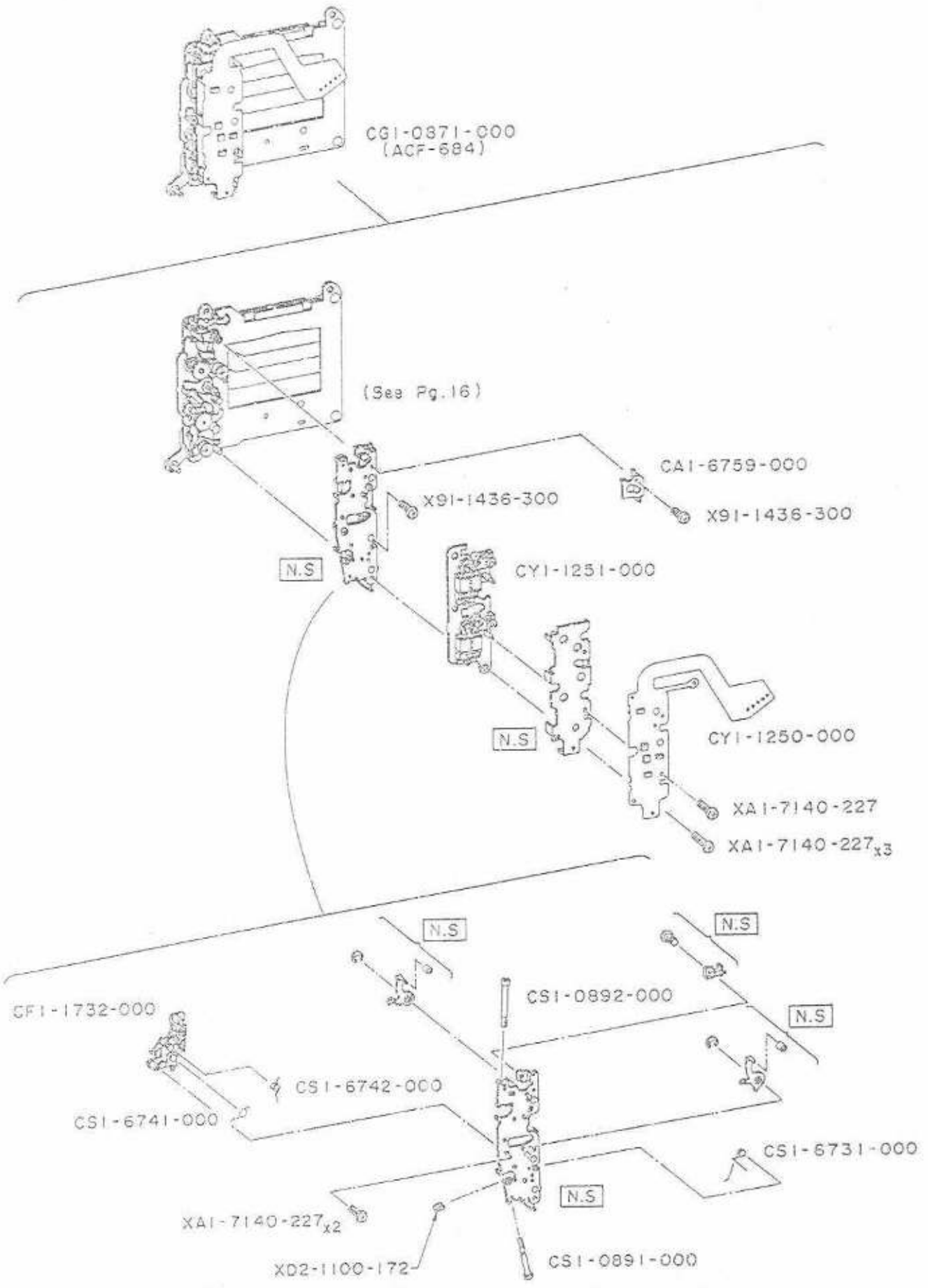
A	SIZE
ø2.4 mm	(024)
ø2.5 mm	(025)
ø2.6 mm	(026)

REF. NO. C12-1902

BODY PARTS, MINOR

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-4257-000	D	1	SEAL, FILM
	CA1-6134-000	E	1	LIGHT SHIELD
	CA1-6739-000	D	1	INSULATOR
	CA1-6740-000	D	1	SPACER
	CA1-6366-000	D	1	CONTACT, BACK COVER
	CA1-6367-000	D	1	CONTACT (GND), BACK COVER
	CA1-6368-000	E	1	PLATE, SAFETY LOCK
	CA1-6371-000	E	1	COVER
	CA1-6386-000	E	1	LUG, NECK STRAP
	CA1-6391-000	E	1	SPRING, PLATE
	CA1-6454-000	E	2	SCREW, AL COVER SHAFT
	CA1-6457-000	E	1	SPACER, FLEX
	CA1-6472-000	E	1	STABILIZER, CARTRIDGE
	CA1-6484-000(XXX)	E	1	SHAFT, FILM GUIDE
	CA1-6485-000	E	1	INSULATOR
	CA1-6497-000	E	1	LIGHT SHIELD
	CG9-2670-000	D	1	AL COVER ASSY
	CS1-6535-000(XXX)	E	1	SPRING
	CY1-1247-000	E	1	BODY
	XA1-1170-357		1	SCREW, CROSS-RECESS, PH
	XA1-1170-359		1	SCREW, CROSS-RECESS, PH
	XA4-9170-357		2	SCREW, CROSS-RECESS, PH
	X91-1737-760		2	SCREW, CROSS-RECESS, PH
	X99-0481-000		1	SCREW, CROSS-RECESS, PH
	X99-0566-000		3	SCREW, CROSS-RECESS, PH
	X99-0571-000		1	SCREW, CROSS-RECESS, PH

CANON T90

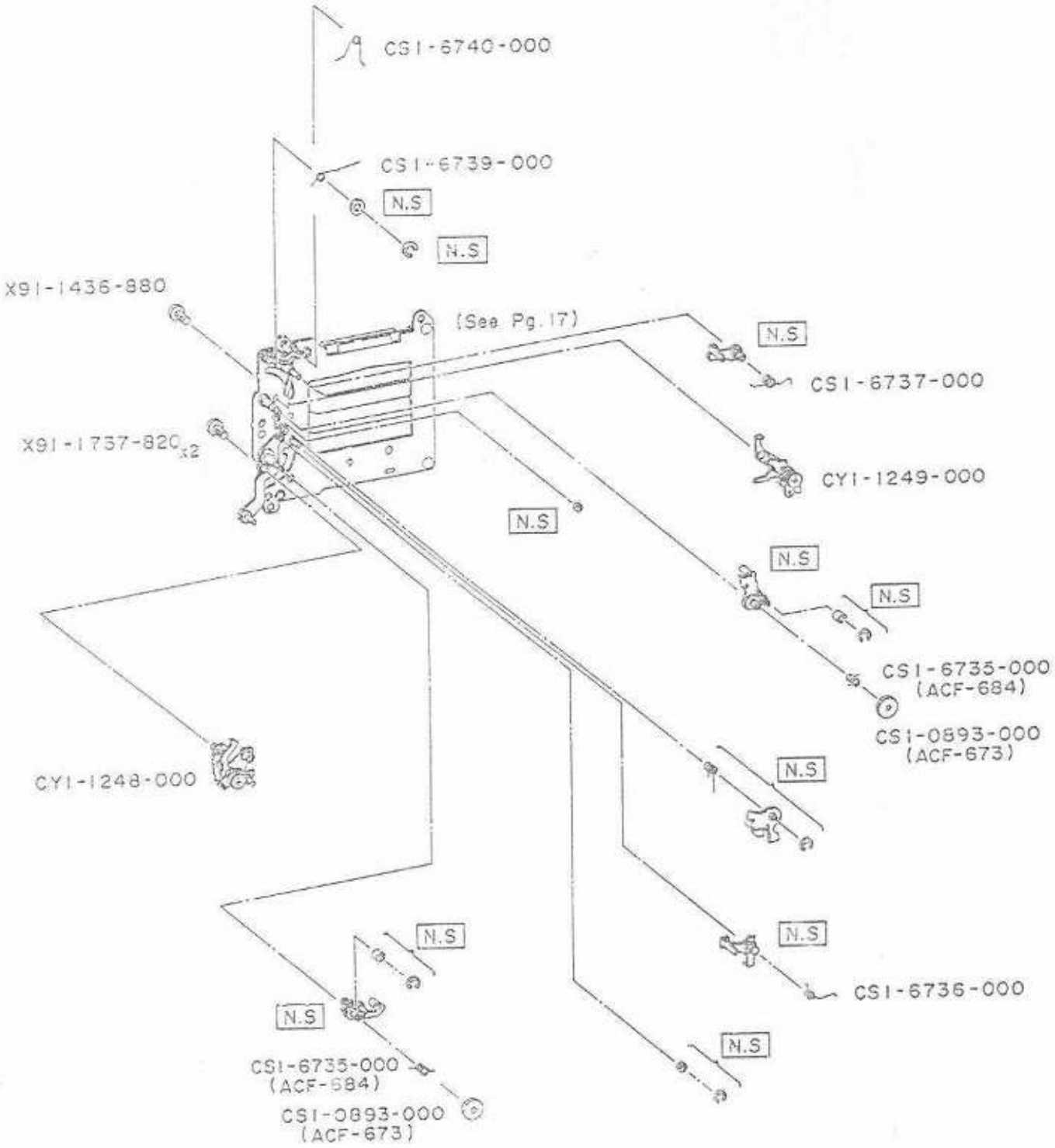

CG1-0871-000
(ACF-684)
(See Pg.16)
CA1-6759-000
X91-1436-300
X91-1436-300
N.S
CY1-1251-000
N.S
CY1-1250-000
XA1-7140-227
XA1-7140-227x3
N.S
N.S
CS1-0892-000
N.S
CF1-1732-000
CS1-6742-000
CS1-6741-000
CS1-6731-000
N.S
XA1-7140-227x2
XD2-1100-172
CS1-0891-000

REF. NO. C12-1902

SHUTTER UNIT I

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-6759-000	E	1	SHIELD, LIGHT
	CF1-1732-000	D	1	BASE, X CONTACT
	CG1-0871-000	D	1	SHUTTER UNIT
	CS1-0891-000	E	1	SHAFT, 1ST CURTAIN WORM
	CS1-0892-000	E	1	SHAFT, 2ND CURTAIN WORM
	CS1-6731-000	E	1	SPRING
	CS1-6741-000	E	1	SPRING
	CS1-6742-000	E	1	SPRING
	CY1-1250-000	E	1	SHUTTER FLEX ASSY
	CY1-1251-000	E	1	SHUTTER MAGNET ASSY
	XA1-7140-227		6	SCREW, CROSS-RECESS, PH
	XD2-1100-172		1	E RING
	X91-1436-300		2	SCREW, CROSS-RECESS, PH

CANON T90

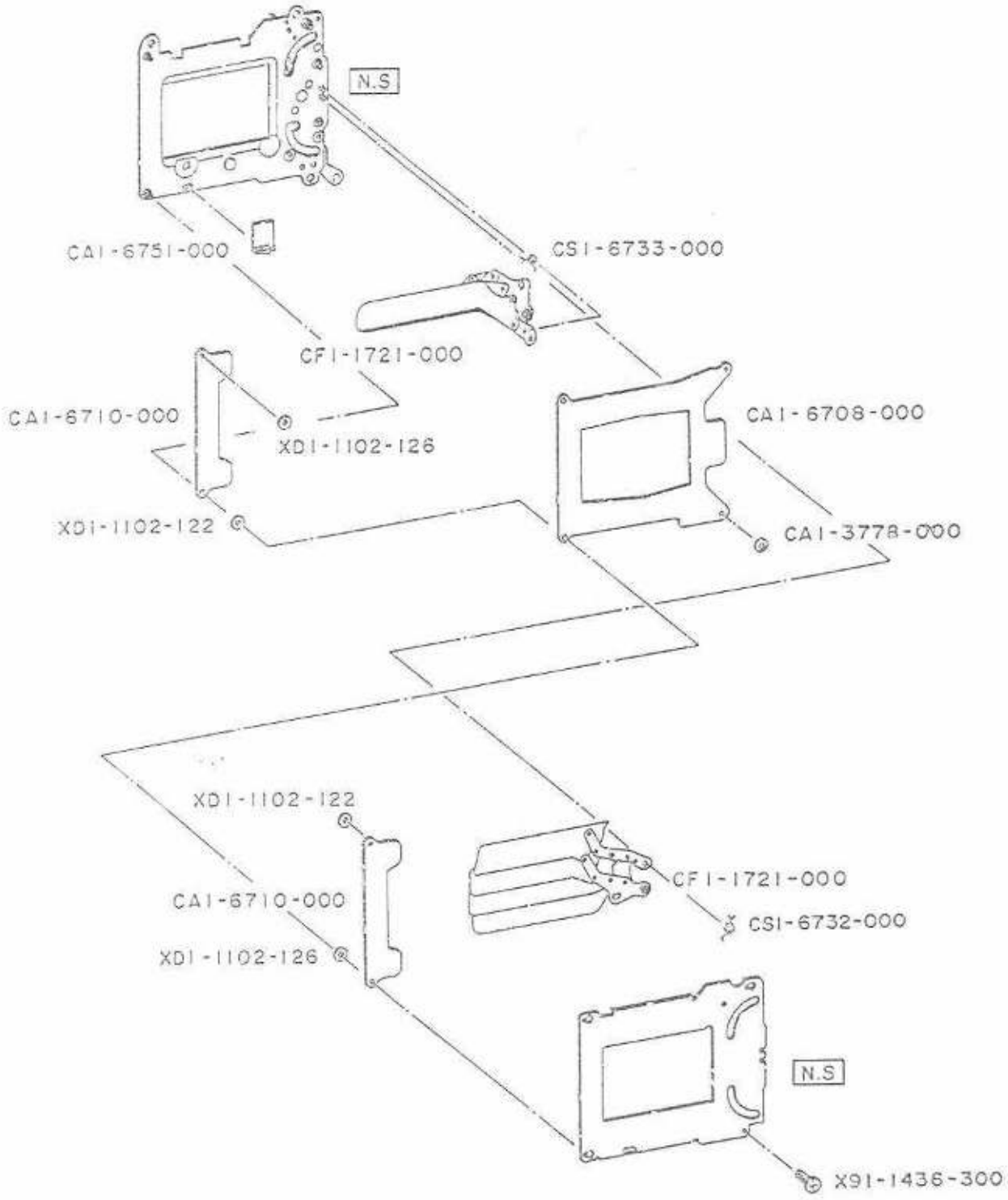

CS1-6740-000
CS1-6739-000
N.S
N.S
X91-1436-880
(See Pg. 17)
N.S
CS1-6737-000
X91-1737-820 x2
CY1-1249-000
N.S
N.S
N.S
CS1-6735-000
(ACF-684)
CS1-0893-000
(ACF-673)
CY1-1248-000
N.S
N.S
N.S
CS1-6736-000
N.S
N.S
CS1-6735-000
(ACF-684)
CS1-0893-000
(ACF-673)

REF. NO. C12-1902

SHUTTER UNIT II

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CS1-0893-000	E	2	GEAR
	CS1-6735-000	E	2	SPRING
	CS1-6736-000	E	1	SPRING
	CS1-6737-000	E	1	SPRING
	CS1-6739-000	E	1	SPRING
	CS1-6740-000	E	1	SPRING
	CY1-1248-000	D	1	1ST CURTAIN BRAKE ASSY
	CY1-1249-000	D	1	2ND CURTAIN BRAKE ASSY
	X91-1436-880		1	SCREW, CROSS-RECESS, PH
	X91-1737-820		2	SCREW, CROSS-RECESS, PH

CANON T90


N.S
CA1-6751-000
CS1-6733-000
CF1-1721-000
CA1-6710-000
XD1-1102-126
CA1-6708-000
XD1-1102-122
CA1-3778-000
XD1-1102-122
CF1-1721-000
CA1-6710-000
CS1-6732-000
XD1-1102-126
N.S
X91-1436-300

REF. NO. C12-1902

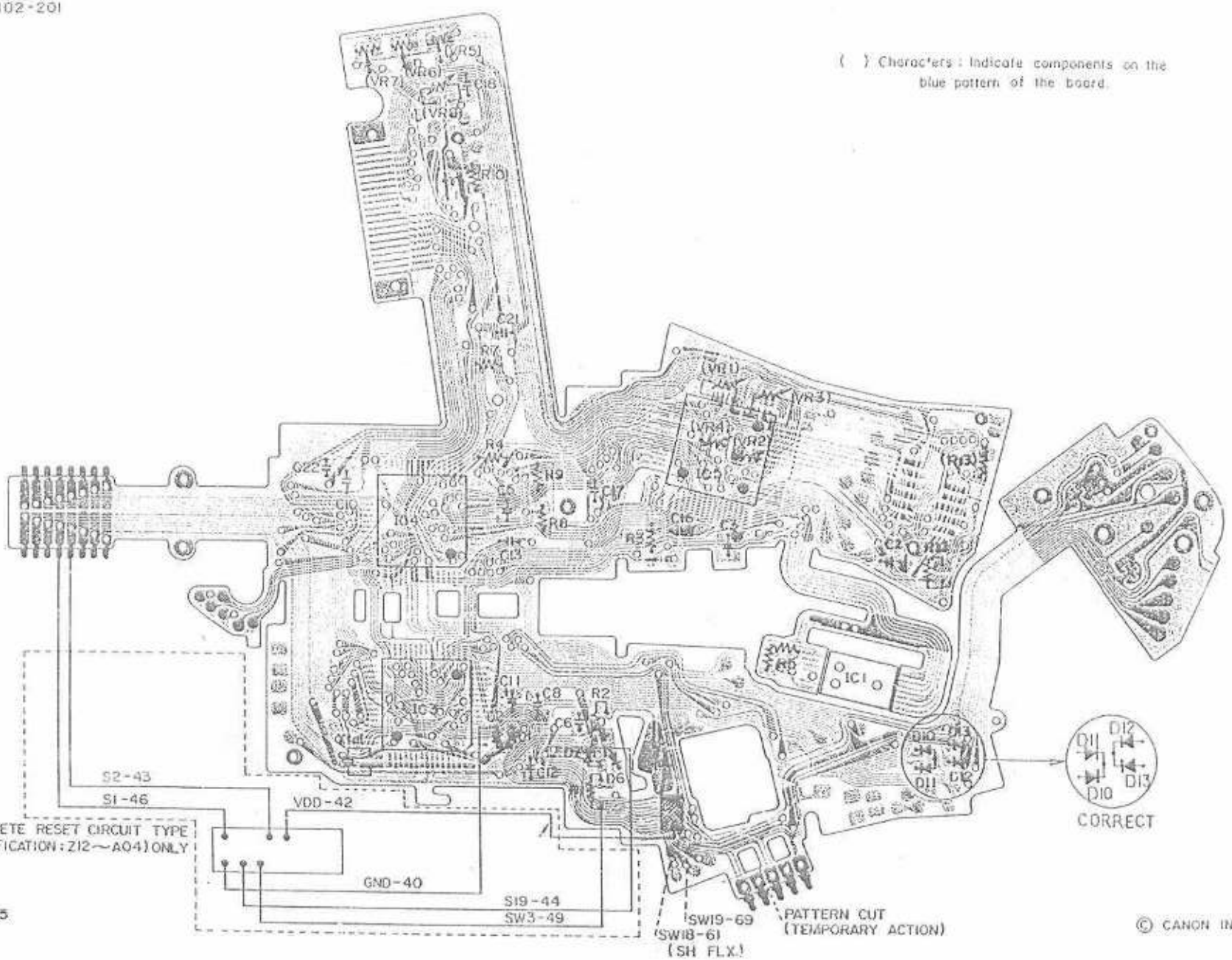
SHUTTER UNIT III

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-3778-000	E	1	RUBBER, STOPPER-A
	CA1-6708-000	E	1	PLATE, SEPARATOR
	CA1-6710-000	E	2	SPACER
	CA1-6751-000	E	1	DAMPER, SHUTTER CURTAIN
	CF1-1721-000	C	2	CURTAIN, SHUTTER
	CS1-6732-000	E	1	SPRING
	CS1-6733-000	E	1	SPRING
	XD1-1102-122		2	WASHER
	XD1-1102-126		2	WASHER
	X91-1436-300		1	SCREW, CROSS-RECESS, PH

CANON T90

PCB DIAGRAM
CY8-1421-102-201

( ) Characters : Indicate components on the blue pattern of the board.



01 OCT, 1985

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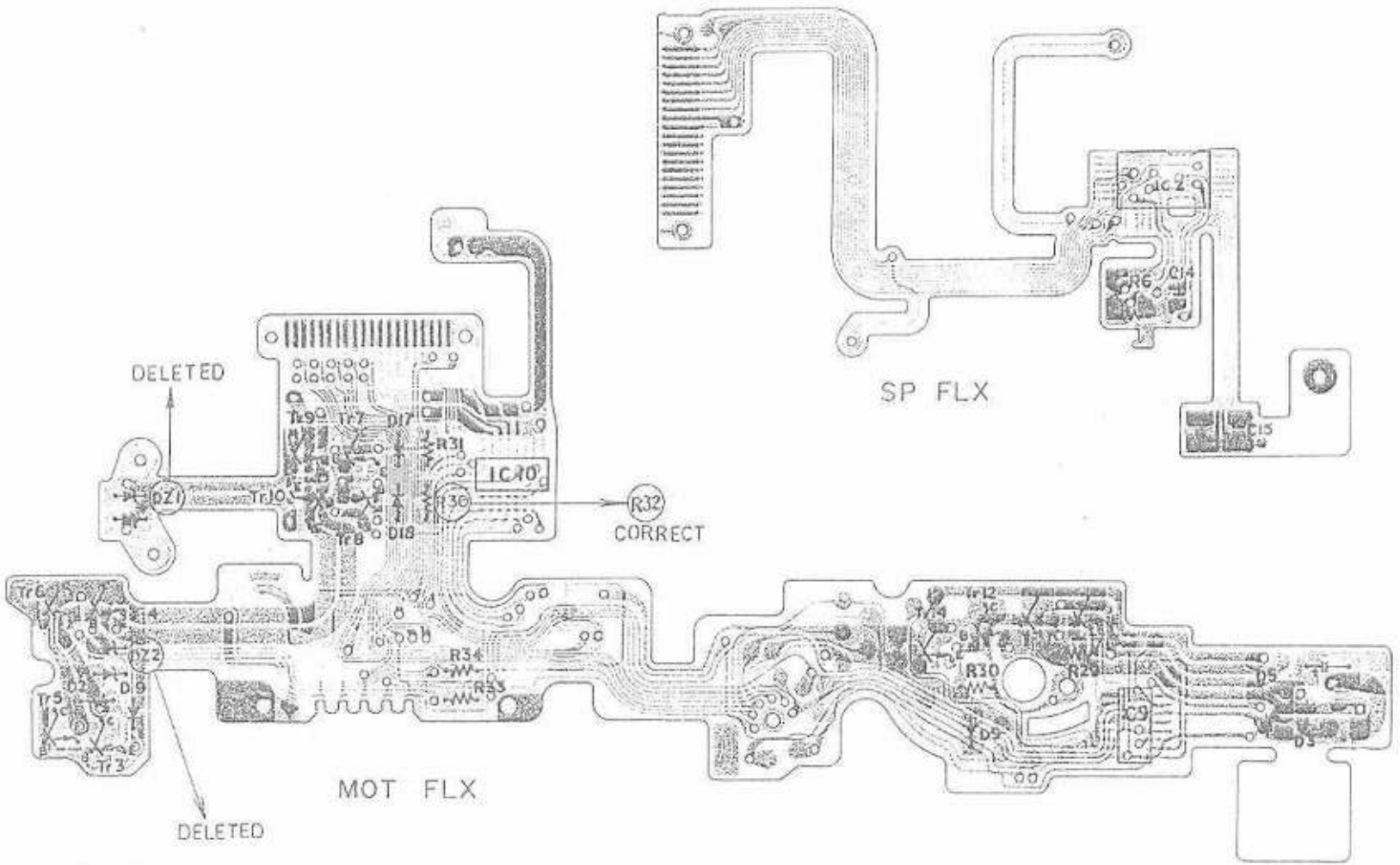
CANON T90

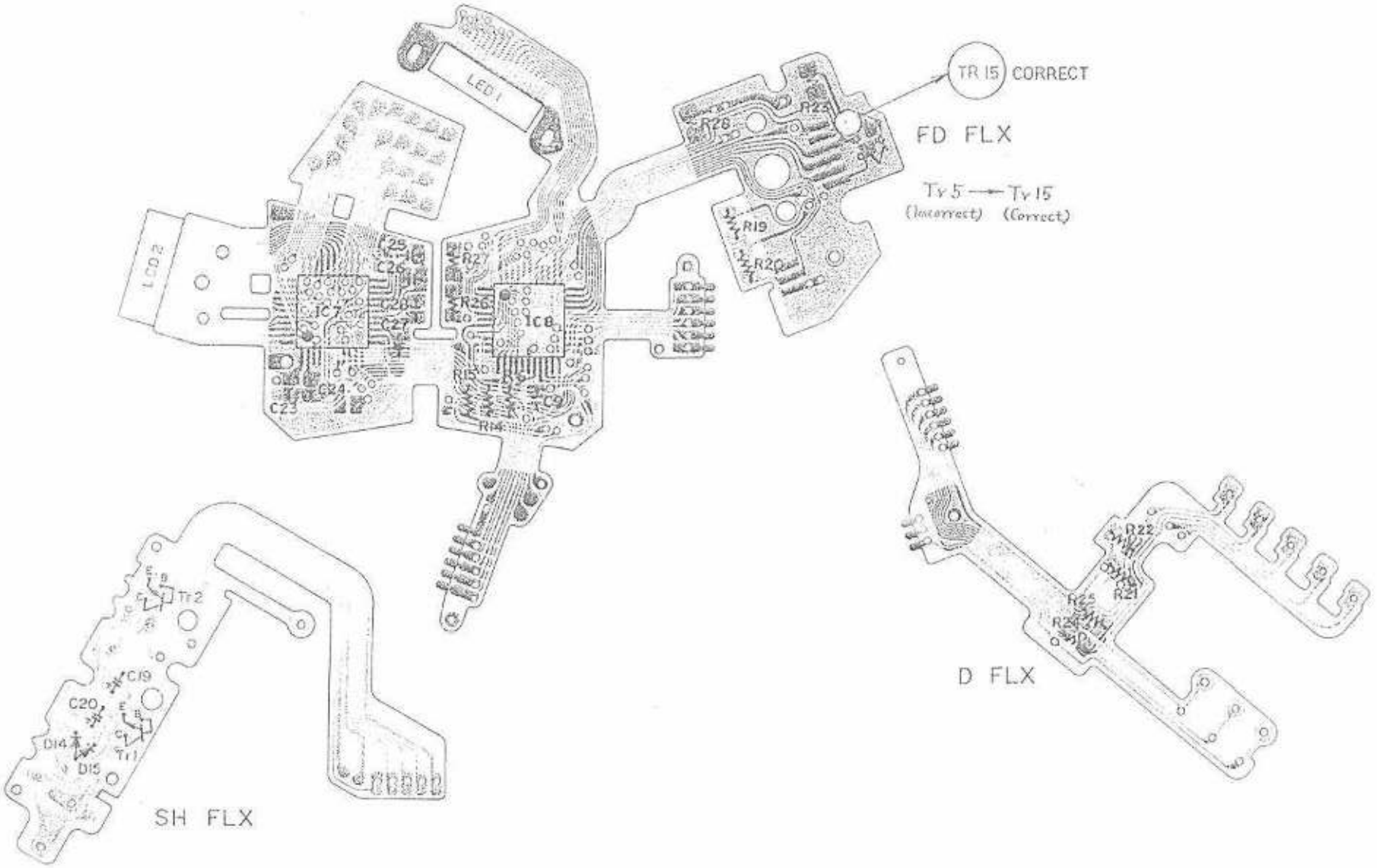
PCB DIAGRAM (MOT, SP FLX)

CY8-1421-102-203



CANON T90

PCB DIAGRAM (FD, SH, D FLX)
CY8-1421-102-202



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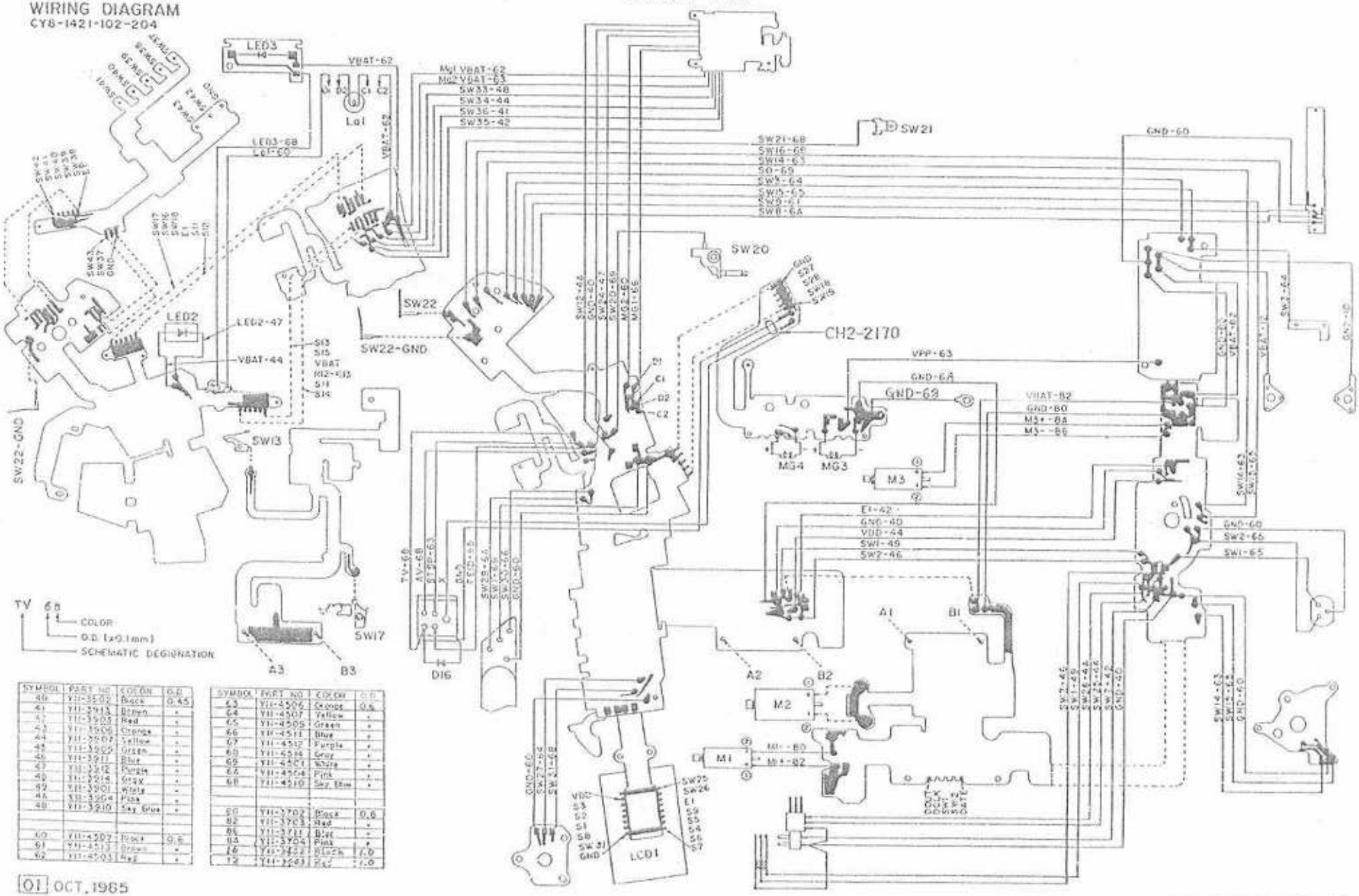
REF. NO. CI2-1902

CANON T90

WIRING DIAGRAM
CY8-1421-102-204



SYMBOL	PART NO	COLOR	O.D
40	YH1-3502	Black	0.45
41	YH1-3913	Brown	"
42	YH1-3903	Red	"
43	YH1-3906	Orange	"
44	YH1-3907	Yellow	"
45	YH1-3909	Green	"
46	YH1-3911	Blue	"
47	YH1-3912	Purple	"
48	YH1-3914	Gray	"
49	YH1-3901	White	"
4A	YH1-3904	Pink	"
4B	YH1-3910	Sky Blue	"
50	YH1-4507	Black	0.6
51	YH1-4513	Brown	"
52	YH1-4503	Red	"

SYMBOL	PART NO	COLOR	O.D
53	YH1-4506	Orange	0.6
54	YH1-4507	Yellow	"
55	YH1-4509	Green	"
56	YH1-4511	Blue	"
57	YH1-4512	Purple	"
58	YH1-4514	Gray	"
59	YH1-4501	White	"
5A	YH1-4504	Pink	"
5B	YH1-4510	Sky Blue	"
60	YH1-3702	Black	0.8
62	YH1-3703	Red	"
66	YH1-3711	Blue	"
6A	YH1-3704	Pink	"
1B	YH1-3422	Black	1.0
1J	YH1-3403	Red	"

01 OCT. 1985

REF. NO. C12-1902

ELECTRIC PARTS & LEADS

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
DC/DC	CH3-0021-000	D		CONVERTER, DC/DC	
IC 1	CH4-0161-000	D		IC	T2890A
IC 2				IC	T8123
IC 3	CH4-0153-000	D		IC	T7488A
IC 4	CH4-0155-000	D		IC	T1687
IC 5	CH4-0154-000	D		IC	M50753-955FP
IC 6				IC	T7487
IC 7	CH4-0157-000	E		IC	T7486
IC 8	CH4-0158-000	E		IC	T1688
IC 9	CH4-0159-000	E		IC	T8120
IC 10	CH4-0159-000	E		IC	T8120
La 1	WG1-0275-000	D		LAMP	AXL-32
LCD 1	AF7-5002-000	E		LCD, EXTERNAL	
LCD 2	AF7-5003-000	E		LCD,INXTERNAL	
LED 1					
LED 2	CH4-0152-000	D		LED	LS007C
LED 3	WG1-0276-000	D		LED	LN01201CAL
M 1	WL1-9059-000	D		MOTOR	DC6V, 2.3W
M 2	WL1-9060-000	D		MOTOR	DC6V, 4.3W
M 3	WL1-9061-000	D		MOTOR	DC6V, 2.3W
R5, 6	VR5-0140-432	E		RESISTOR	4.3 KOHM, 1/8W
	VR5-0140-472	E		RESISTOR	4.7 KOHM, 1/8W
	VR5-0140-512	E		RESISTOR	5.1 KOHM, 1/8W
	VR5-0140-562	E		RESISTOR	5.6 KOHM, 1/8W
	VR5-0140-622	E		RESISTOR	6.2 KOHM, 1/8W
	VR5-0140-682	E		RESISTOR	6.8 KOHM, 1/8W
	VR5-0140-752	E		RESISTOR	7.5 KOHM, 1/8W
	VR5-0140-822	E		RESISTOR	8.2 KOHM, 1/8W
	VR5-0140-912	E		RESISTOR	9.1 KOHM, 1/8W
	VR5-0140-103	E		RESISTOR	10.0 KOHM, 1/8W
	VR5-0140-113	E		RESISTOR	11.0 KOHM, 1/8W
	VR5-0140-123	E		RESISTOR	12.0 KOHM, 1/8W
	VR5-0140-153	E		RESISTOR	15.0 KOHM, 1/8W
	VR5-0140-183	E		RESISTOR	18.0 KOHM, 1/8W
	VR5-0140-223	E		RESISTOR	22.0 KOHM, 1/8W
	VR5-0140-333	E		RESISTOR	33.0 KOHM, 1/8W
	VR5-0140-563	E		RESISTOR	56.0 KOHM, 1/8W
	VR5-0140-104	E		RESISTOR	100.0 KOHM, 1/8W
R7	VR5-0134-121	E		RESISTOR	4.12 KOHM, 1/8W
	VR5-0134-221	E		RESISTOR	4.22 KOHM, 1/8W
	VR5-0134-321	E		RESISTOR	4.32 KOHM, 1/8W
	VR5-0134-421	E		RESISTOR	4.42 KOHM, 1/8W
	VR5-0134-531	E		RESISTOR	4.53 KOHM, 1/8W
	VR5-0134-641	E		RESISTOR	4.64 KOHM, 1/8W
	VR5-0134-751	E		RESISTOR	4.75 KOHM, 1/8W
	VR5-0134-871	E		RESISTOR	4.87 KOHM, 1/8W
	VR5-0134-991	E		RESISTOR	4.99 KOHM, 1/8W
	VR5-0135-111	E		RESISTOR	5.11 KOHM, 1/8W
	VR5-0135-231	E		RESISTOR	5.23 KOHM, 1/8W
	VR5-0135-361	E		RESISTOR	5.36 KOHM, 1/8W
	VR5-0135-491	E		RESISTOR	5.49 KOHM, 1/8W
	VR5-0135-621	E		RESISTOR	5.62 KOHM, 1/8W

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SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
	VR5-0135-781	E		RESISTOR	5.76 KOHM, 1/8W
	VR5-0135-901	E		RESISTOR	5.90 KOHM, 1/8W
R8	VR5-0131-300	E		RESISTOR	130 OHM, 1/8W
	VR5-0131-960	E		RESISTOR	196 OHM, 1/8W
	VR5-0132-610	E		RESISTOR	261 OHM, 1/8W
	VR5-0133-240	E		RESISTOR	324 OHM, 1/8W
	VR5-0133-920	E		RESISTOR	392 OHM, 1/8W
	VR5-0134-530	E		RESISTOR	453 OHM, 1/8W
	VR5-0135-250	E		RESISTOR	523 OHM, 1/8W
	VR5-0135-900	E		RESISTOR	590 OHM, 1/8W
	VR5-0136-490	E		RESISTOR	649 OHM, 1/8W
	VR5-0137-150	E		RESISTOR	715 OHM, 1/8W
	VR5-0137-870	E		RESISTOR	787 OHM, 1/8W
	VR5-0138-450	E		RESISTOR	845 OHM, 1/8W
	VR5-0139-090	E		RESISTOR	909 OHM, 1/8W
	VR5-0139-760	E		RESISTOR	976 OHM, 1/8W
	VR5-0131-051	E		RESISTOR	1.05 KOHM, 1/8W
	VR5-0131-101	E		RESISTOR	1.10 KOHM, 1/8W
	VR5-0131-131	E		RESISTOR	1.18 KOHM, 1/8W
	VR5-0131-241	E		RESISTOR	1.24 KOHM, 1/8W
	VR5-0131-301	E		RESISTOR	1.30 KOHM, 1/8W
R10	VR5-0131-242	E		RESISTOR	12.4 KOHM, 1/8W
	VR5-0131-272	E		RESISTOR	12.7 KOHM, 1/8W
	VR5-0131-302	E		RESISTOR	13.0 KOHM, 1/8W
	VR5-0131-332	E		RESISTOR	13.3 KOHM, 1/8W
	VR5-0131-372	E		RESISTOR	13.7 KOHM, 1/8W
	VR5-0131-402	E		RESISTOR	14.0 KOHM, 1/8W
	VR5-0131-432	E		RESISTOR	14.3 KOHM, 1/8W
	VR5-0131-472	E		RESISTOR	14.7 KOHM, 1/8W
	VR5-0131-502	E		RESISTOR	15.0 KOHM, 1/8W
	VR5-0131-542	E		RESISTOR	15.4 KOHM, 1/8W
	VR5-0131-582	E		RESISTOR	15.8 KOHM, 1/8W
	VR5-0131-622	E		RESISTOR	16.2 KOHM, 1/8W
	VR5-0131-652	E		RESISTOR	16.5 KOHM, 1/8W
	VR5-0131-692	E		RESISTOR	16.9 KOHM, 1/8W
	VR5-0131-742	E		RESISTOR	17.4 KOHM, 1/8W
	VR5-0131-782	E		RESISTOR	17.8 KOHM, 1/8W
	VR5-0131-822	E		RESISTOR	18.2 KOHM, 1/8W
	VR5-0131-872	E		RESISTOR	18.7 KOHM, 1/8W
	VR5-0131-912	E		RESISTOR	19.1 KOHM, 1/8W
	VR5-0131-962	E		RESISTOR	19.6 KOHM, 1/8W
	VR5-0132-002	E		RESISTOR	20.0 KOHM, 1/8W
R12	VR5-1070-513	E		RESISTOR	51.0 KOHM, 1/16W
R13	VR5-0136-041	E		RESISTOR	6.04 KOHM, 1/8W
	VR5-0136-191	E		RESISTOR	6.19 KOHM, 1/8W
	VR5-0136-341	E		RESISTOR	6.34 KOHM, 1/8W
	VR5-0136-491	E		RESISTOR	6.49 KOHM, 1/8W
	VR5-0136-651	E		RESISTOR	6.65 KOHM, 1/8W
	VR5-0136-811	E		RESISTOR	6.81 KOHM, 1/8W
	VR5-0136-981	E		RESISTOR	6.98 KOHM, 1/8W
	VR5-0137-151	E		RESISTOR	7.15 KOHM, 1/8W
	VR5-0137-321	E		RESISTOR	7.32 KOHM, 1/8W
	VR5-0137-501	E		RESISTOR	7.50 KOHM, 1/8W
	VR5-0137-681	E		RESISTOR	7.68 KOHM, 1/8W
	VR5-0137-871	E		RESISTOR	7.87 KOHM, 1/8W
	VR5-0138-061	E		RESISTOR	8.06 KOHM, 1/8W

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SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
	VR5-0138-251	E		RESISTOR	8.25 KOHM, 1/8W
	VR5-0138-451	E		RESISTOR	8.45 KOHM, 1/8W
	VR5-0138-661	E		RESISTOR	8.66 KOHM, 1/8W
	VR5-0138-871	E		RESISTOR	8.87 KOHM, 1/8W
	VR5-0139-091	E		RESISTOR	9.09 KOHM, 1/8W
	VR5-0139-311	E		RESISTOR	9.31 KOHM, 1/8W
	VR5-0139-531	E		RESISTOR	9.53 KOHM, 1/8W
	VR5-0139-761	E		RESISTOR	9.76 KOHM, 1/8W
R35	XS2-7436-000	E		THERMISTOR	ERT-D2FH133S
Tr 1,2	WA2-0731-000	E		TRANSISTOR	2SC 3265
Tr 3,4	WA2-0411-000	E		TRANSISTOR	2SA 1314
Tr 5,6	WA2-0216-000	E		TRANSISTOR	2SC 2982
Tr 7,8	WA2-0411-000	E		TRANSISTOR	2SA 1314
Tr 9,10	WA2-0216-000	E		TRANSISTOR	2SC 2982
Tr11,12	WA2-0411-000	E		TRANSISTOR	2SA 1314
Tr13,14	WA2-0216-000	E		TRANSISTOR	2SC 2982
Tr15	WA2-0730-000	E		TRANSISTOR	RN 2405
VR1	CH9-0102-000(100)	E		RESISTOR, VARIABLE	9- 13 KOHM
VR2	CH9-0103-000(100)	E		RESISTOR, VARIABLE	15- 30 KOHM
VR3	CH9-0104-000(100)	E		RESISTOR, VARIABLE	18- 44 KOHM
VR4	CH9-0105-000(100)	E		RESISTOR, VARIABLE	54- 93 KOHM
VR5	CH9-0101-000(100)	E		RESISTOR, VARIABLE	0- 10 KOHM
VR6	CH9-0101-000(100)	E		RESISTOR, VARIABLE	0- 10 KOHM
VR7	CH9-0101-000(100)	E		RESISTOR, VARIABLE	0- 10 KOHM
VR8	CH9-0106-000(100)	E		RESISTOR, VARIABLE	0-280 KOHM
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	Y11-3403-000			LEAD	RED
	Y11-3702-000			LEAD	BLACK
	Y11-3703-000			LEAD	RED
	Y11-3704-000			LEAD	PINK
	Y11-3711-000			LEAD	BLUE
	Y11-3901-000			LEAD	WHITE
	Y11-3902-000			LEAD	BLACK
	Y11-3903-000			LEAD	RED
	Y11-3904-000			LEAD	PINK
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	Y11-3907-000			LEAD	YELLOW
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	Y11-3911-000			LEAD	BLUE
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	Y11-3914-000			LEAD	GRAY
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	Y11-4502-000			LEAD	BLACK
	Y11-4503-000			LEAD	RED
	Y11-4504-000			LEAD	PINK
	Y11-4506-000			LEAD	ORANGE
	Y11-4507-000			LEAD	YELLOW
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	Y11-4510-000			LEAD	SKY BLUE
	Y11-4511-000			LEAD	BLUE
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	Y11-4513-000			LEAD	BROWN
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